IMPORTANT

Before you remove the Wire-Seal, check the contents of this envelope with the listing on the front of the envelope. If any part is missing, your Howard W. Sams distributor will replace the entire PHOTOFACT set IF the Wire-Seal has not been damaged.

This PHOTOFACT Folder Set is

WIRE-SEALED FOR YOUR PROTECTION

to guarantee completeness of contents

DO NOT ACCEPT IF SEAL HAS BEEN BROKEN

TO OPEN ***JUST DO THIS:***

1

Take hold of the Set with both hands. Place your thumbs directly under the top wire-seal; then, divide the contents equally by putting your thumbs midway through the thickness of the Set. Now, pull the two sections apart at the top, firmly.

2

Repeat this process, pulling close to the wire-seal at the bottom, so that the set is now divided into two equal parts.

3

Continue this "pulling-apart" process with the section in which the wire-seals remain, dividing it in half.

4

Finally, remove the wire-seals left in the last section; this can easily be done with your fingernail or any sharp instrument.

Your "Safety-Sealed" PHOTOFACT Set is now ready for profit-making use . . .

IMPORTANT

Before you remove the Wire-Seal, check the contents of this envelope with the listing on the front of the envelope. If any part is missing, your Howard W. Sams distributor will replace the entire PHOTOFACT set IF the Wire-Seal has not been damaged.

The PHOTOFACT® Servicer

SET 503 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ OCT. 1960

CONTENTS PHOTOFACT SET 503

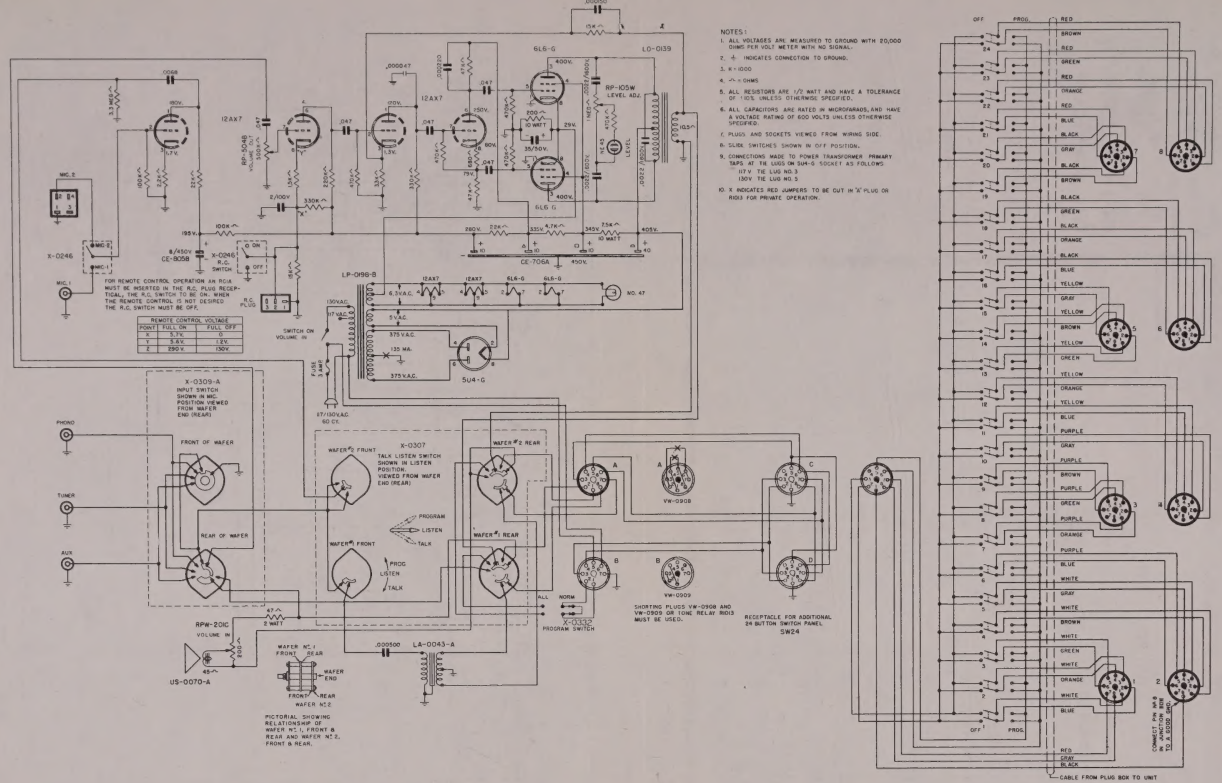
TRADE NAME AND MODEL	SET AND FOLDER NO.
TELEVISION RECEIVERS	
DUMONT	
Series RA600A, RA601A (Ch. 120600A, 120601A, 471183, 471184)	503-1
MOTOROLA	
Chassis TS-567Y, TS-567	503-2
OTHER EQUIPMENT	
AMERICAN MOTORS	
8990811	503-3
ARCHER	
Stereodyne/3	503-4
ARKAY	
FL-10	503-5
BLONDER-TONGUE	
R-20	503-6
COLUMBIA	
C-1012B, G, C-1148B, M, W	503-7
COLUMBIA	
C-1162M, W	503-8
EICO	
HF-87	503-9
EMERSON	
901D, 903B, 904B, 905B, 906B, 971, 971A, 972, 973 (Ch. 120458B, 120462B, 120467B, 120471B, 120473B)	503-10
LAFAYETTE	
LA-55	503-11
MOPAR	
101, 104, 110	503-12
MOPAR	
303, 304, 305	503-13
NORELCO	
L2X97T	503-14
OLYMPIC	
SP-58	503-15
REALISTIC	
AF-12	503-16
V-M	
815	503-17
ZENITH	
SFD280M, R, SFD2530E, R, W, Y, SFD2535M, R (Ch. 3D32, 9D26)	503-18

This Servicer provides you with essential data on other models or special equipment not covered in standard PHOTOFACT folders. The schematics and supplementary data included here will be of valuable help to you in servicing this equipment.

IN THIS ISSUE OF THE SERVICER:

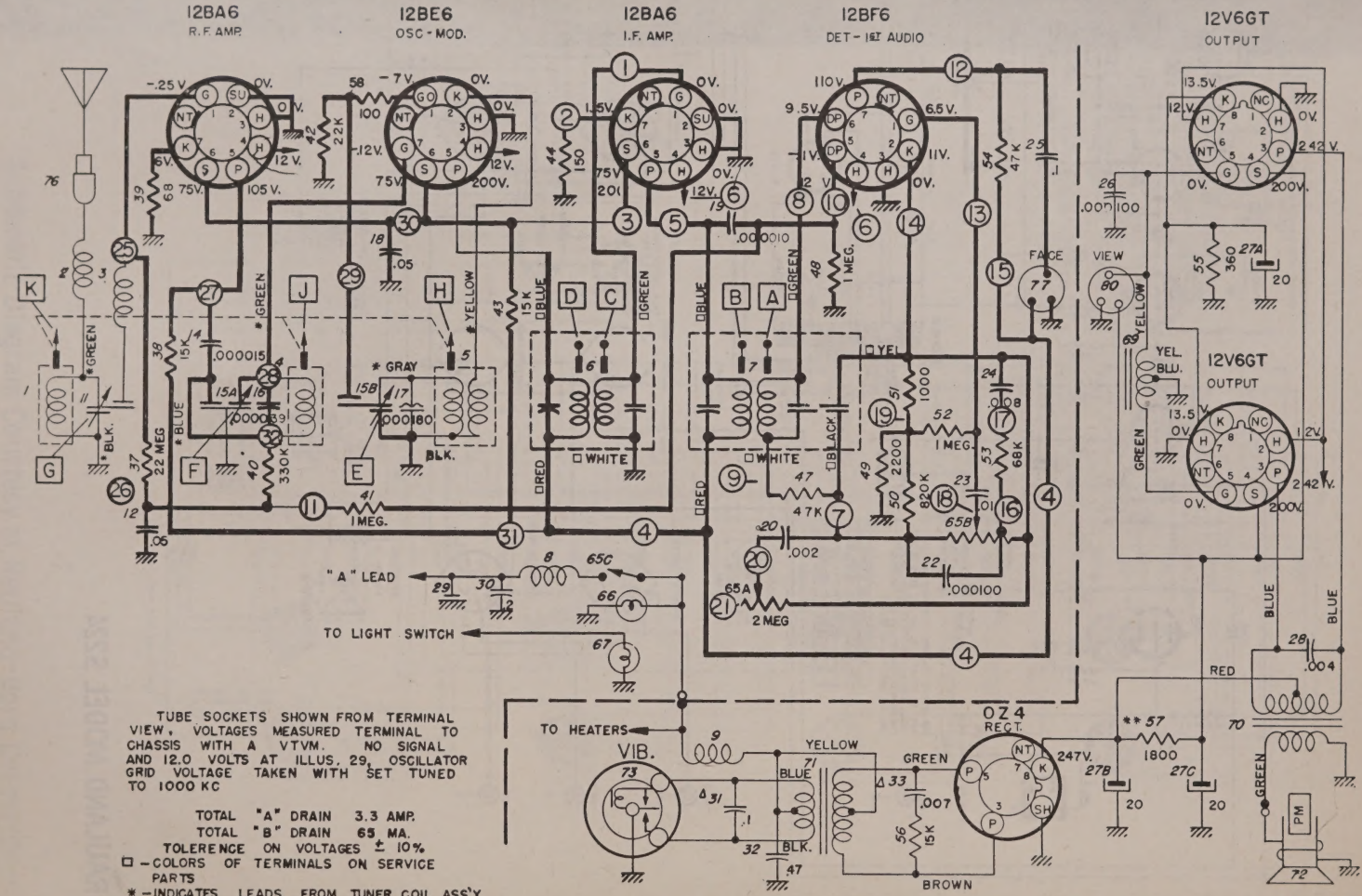
Pontiac Model
988623

Rauland Model
S224


NOTES:
1. ALL VOLTAGES ARE MEASURED TO GROUND WITH 20,000 OHMS PER VOLT METER WITH NO SIGNAL.
2. ⏚ INDICATES CONNECTION TO GROUND.
3. K = 1000
4. Ω = OHMS
5. ALL RESISTORS ARE 1/2 WATT AND HAVE A TOLERANCE OF ±10% UNLESS OTHERWISE SPECIFIED.
6. ALL CAPACITORS ARE RATED IN MICROFARADS, AND HAVE A VOLTAGE RATING OF 600 VOLTS UNLESS OTHERWISE SPECIFIED.
7. PLUGS AND SOCKETS VIEWED FROM WIRING SIDE.
8. SLIDE SWITCHES SHOWN IN OFF POSITION.
9. CONNECTIONS MADE TO POWER TRANSFORMER PRIMARY TAPS AT THE LUGS ON 5U4-G SOCKET AS FOLLOWS
117 V. TIE LUG NO. 3
130 V. TIE LUG NO. 5
10. X INDICATES RED JUMPERS TO BE CUT IN 'X' PLUG OR RIO3 FOR PRIVATE OPERATION.
REMOTE CONTROL VOLTAGE
FRONT | FULL ON | FULL OFF
X | 5.7K | 0
Y | 5.8K | 12V
Z | 290 V | 130V
FOR REMOTE CONTROL OPERATION AN RCA MUST BE INSERTED IN THE R.C. PLUG RECEPTICAL, THE R.C. SWITCH TO BE ON. WHEN THE REMOTE CONTROL IS NOT DESIRED THE R.C. SWITCH MUST BE OFF.
PICTORIAL SHOWING RELATIONSHIP OF WAFER NO.1, FRONT & REAR AND WAFER NO.2, FRONT & REAR.
CABLE FROM PLUG BOX TO UNIT
SHORTING PLUGS VW-0908 AND VW-0909 OR TONE RELAY RIO13 MUST BE USED.
RECEPTACLE FOR ADDITIONAL 24 BUTTON SWITCH PANEL SW24
CONNECT THIS WIRE TO A (0050-001)

RAULAND MODEL S224

Schematic Diagram Courtesy of Rauland-Borg Corporation



TUBE SOCKETS SHOWN FROM TERMINAL VIEW. VOLTAGES MEASURED TERMINAL TO CHASSIS WITH A VTVM. NO SIGNAL AND 12.0 VOLTS AT ILLUS. 29, OSCILLATOR GRID VOLTAGE TAKEN WITH SET TUNED TO 1000 KC

TOTAL "A" DRAIN 3.3 AMP.
TOTAL "B" DRAIN 65 MA.
TOLERENCE ON VOLTAGES ± 10%

□ – COLORS OF TERMINALS ON SERVICE PARTS

* – INDICATES LEADS FROM TUNER COIL ASS'Y

* * – SEE SERVICE PARTS LIST FOR REPLACEMENT

Δ – SOME RADIOS HAVE ILLUSTRATION 31 OMITTED AND USE A .008 MFD. BUFFER (ILLUST. 33)

K – INDICATES THOUSAND FOR RESISTOR VALUES.

PONTIAC MODEL 988623

Schematic Diagram Courtesy of Delco Radio Div., General Motors Corp.

PHOTOFACT® Folder with CIRCUITRACE®

DUMONT SERIES RA600A, RA601A
(Ch. 120600A, 120601A, 471183, 471184)

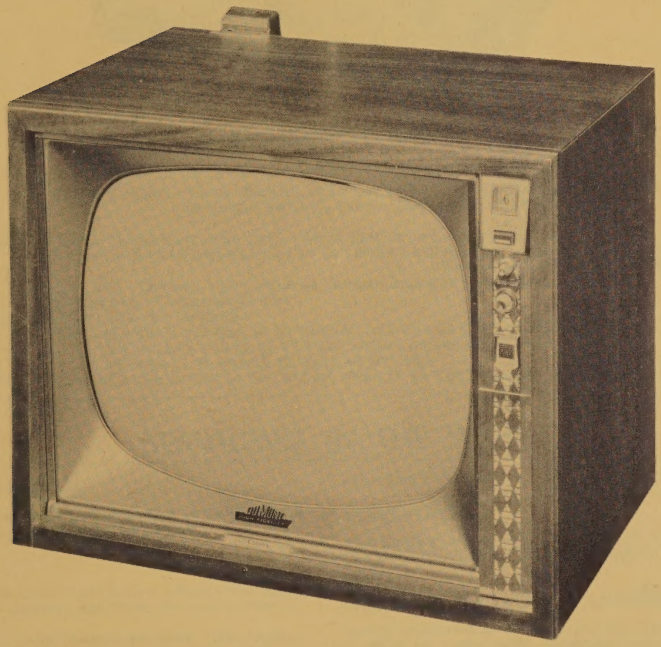
IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

DUMONT SERIES RA600A, RA601A
(Ch. 120600A, 120601A, 471183, 471184)

DUMONT SERIES RA600A, RA601A
(Ch. 120600A, 120601A, 471183, 471184)



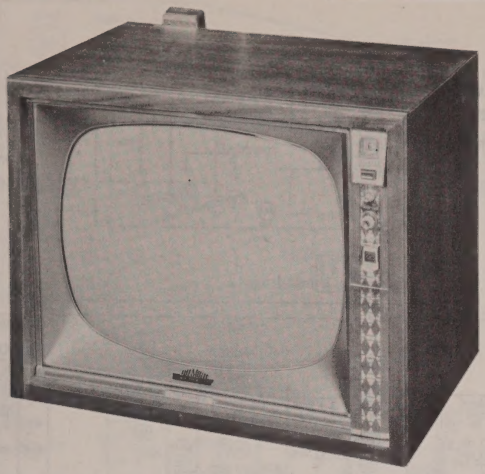
MODEL COLONY (CH. 120601A)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

DUMONT SERIES RA600A, RA601A (Ch. 120600A, 120601A, 471183, 471184)

DUMONT SERIES RA600A, RA601A (Ch. 120600A, 120601A, 471183, 471184)



MODEL COLONY (CH. 120601A)

TRADE NAME	DUMONT Models Benton, Biarritz, Bradford, Colony, DeVille, Hampton, Lauderdale, Marquette, Montclair, Norwood, Oxford, Sussex (TV Ch. 120600A, 120601A)
MANUFACTURER	Dumont Television & Radio Corp., 14th & Coles Streets, Jersey City, N. J.
TYPE SET	Television Receiver (Models using TV Ch. 120601A with Remote Control Receiver 471184 and Remote Control Transmitter 471183)
TUBES	TV: VHF - Eighteen, UHF - Nineteen Remote Control Receiver: Seven
TRANSISTORS	Remote Control Transmitter: Two
POWER SUPPLY	110-120 Volts AC, 60 Cycle
RATING	VHF: 290 Watts, 2.6 Amp. @ 117 Volts AC (with Remote Control, while Tuning) 240 Watts, 2.15 Amp. @ 117 Volts AC (with Remote Control, Not Tuning) 195 Watts, 1.75 Amp. @ 117 Volts AC (TV Only)
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

Remove 4 screws holding the trim strip at the top edge of the safety glass. Tilt glass out and remove.

FUSE

A 7/10 Amp. S/B fuse is used for low voltage power supply protection. (For location, see "Tube Placement Chart".)

A fuse wire is used for filament protection. (For location, see M3, "TV LV Power Supply Chassis-Bottom View".)

A .3 Amp. fuse is used for horizontal sweep protection. (For location, See "Tube Placement Chart".)

TUNER OSCILLATOR ADJUSTMENT

To touch up the VHF Oscillator, it is necessary to remove the chassis. (See "Disassembly Instructions".)

AGC

The AGC may be varied by means of an RF AGC Control and a Dumonitor (AGC) Control. (For location, see "Tube Placement Chart".)

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube.

SYNC STABILITY

Sync stability may be varied by means of a Fringe Lock Control. (For location, see "Tube Placement Chart".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horizontal Frequency Set Control. (For location, see "Tube Placement Chart".)

WIDTH

The width may be varied by a Horizontal Size Control. (For location, see "Tube Placement Chart".)

BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Ratio Detector Secondary (A13) located at top of chassis.

CENTERING

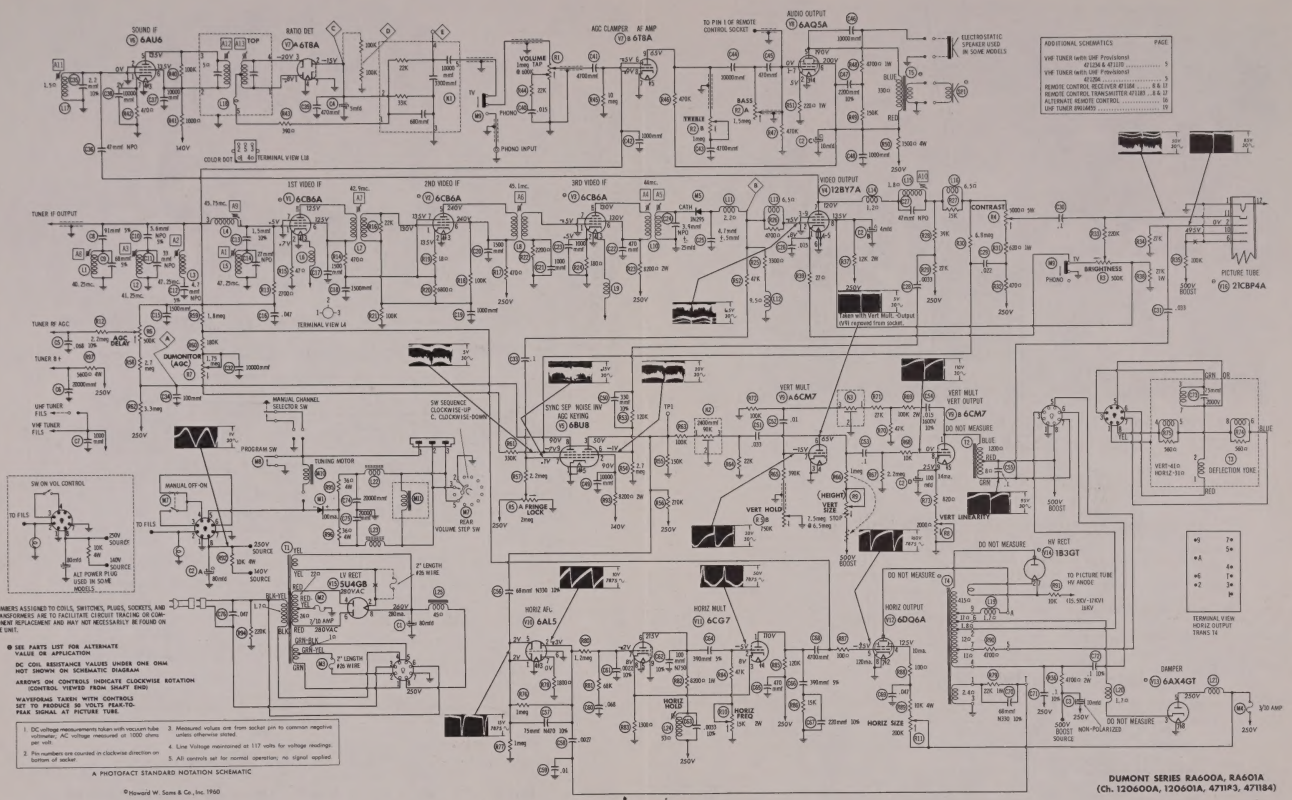
Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

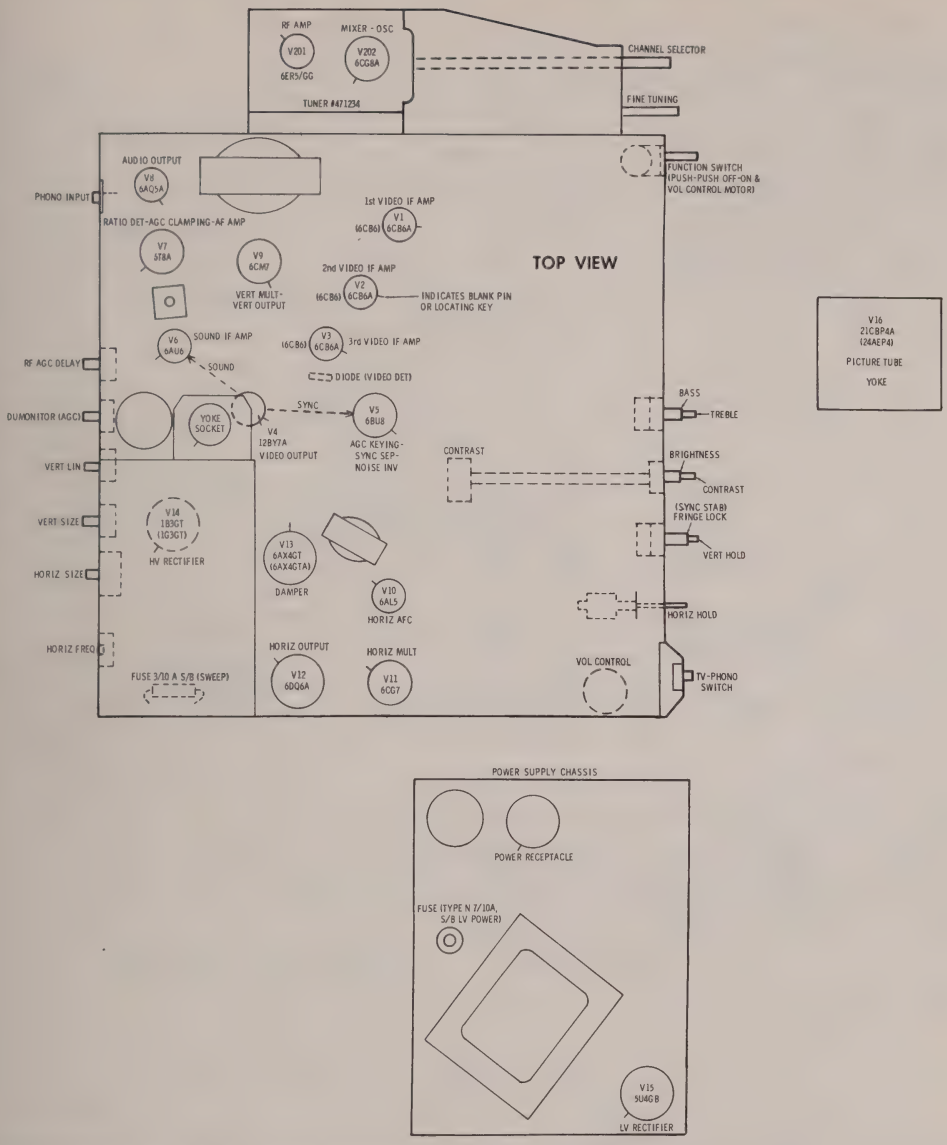
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KA308

SET 503 FOLDER 1


SOUND IF
6AU6
RATIO DET
6T8A
AGC CLAMPER AF AMP
6T8A
AUDIO OUTPUT
6AQ5A
VOLUME
BASS
TREBLE
PHONO INPUT
TO PIN 1 OF REMOTE CONTROL SOCKET
ELECTROSTATIC SPEAKER USED IN SOME MODELS
1ST VIDEO IF
6CB6A
2ND VIDEO IF
6CB6A
3RD VIDEO IF
6CB6A
VIDEO OUTPUT
12BY7A
CONTRAST
BRIGHTNESS
PICTURE TUBE
21CBP4A
TUNER IF OUTPUT
TUNER IF AGC
TUNER B+
AGC DELAY
DUMONITOR (AGC)
UHF TUNER FILS
VHF TUNER FILS
MANUAL CHANNEL SELECTOR SW
PROGRAM SW
TUNING MOTOR
SW SEQUENCE CLOCKWISE-UP C. CLOCKWISE-DOWN
SYNC SEP NOISE INV AGC KEYING
6BU8
VERT MULT
6CM7
VERT MULT VERT OUTPUT
6CM7
DO NOT MEASURE
VERT LINEARITY
VERT HOLD
VERT SIZE
(HEIGHT)
A FRINGE LOCK
VERT-410 HORIZ-310
DEFLECTION YOKE
SW ON VOL CONTROL
MANUAL OFF-ON
VOLUME STEP SW
TO FILS
ALT POWER PLUG USED IN SOME MODELS
LV RECT
5U4GB
HV RECT
1B3GT
TO PICTURE TUBE HV ANODE
HORIZ AFC
6AL5
HORIZ MULT
6CG7
HORIZ OUTPUT
6DQ6A
HORIZ HOLD
HORIZ FREQ
HORIZ SIZE
DAMPER
6AX4GT
NON-POLARIZED
TERMINAL VIEW HORIZ OUTPUT TRANS T4
TERMINAL VIEW L1A
COLOR DOT
TERMINAL VIEW L1B
ADDITIONAL SCHEMATICS PAGE
VHF TUNER (with UHF Provisions) 471234 & 471235 5
VHF TUNER (with UHF Provisions) 471204 13
REMOTE CONTROL RECEIVER 471184 ..... 8 & 13
REMOTE CONTROL TRANSMITTER 471183 ..... 8 & 13
ALTERNATE REMOTE CONTROL 16
UHF TUNER (8901A40) 19
Taken with Vert Mult.-Output (VM) removed from socket.
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 90 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
©Howard W. Sams & Co., Inc. 1960
DUMONT SERIES RA600A, RA601A
(Ch. 120600A, 120601A, 471183, 471184)

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse (LV Power), V15

SWEEP FAILURE
No raster, has sound V11, V12, Fuse, .3A (Sweep), V13, V14, V16
No vertical deflection V9
Poor vert. linearity or foldover V9
Poor horiz. linearity or foldover V11, V12, V13
Narrow picture V11, V12, V13, V15
Vert. off freq. V9
Horiz. off freq. V10, V11

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V16
Has pic, no sound V6, V7, V8
Overloaded picture V5

SYNC FAILURE
No vert. sync V5
No horiz. sync V5, V10
No vert. or horiz. sync V5

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Allow a 20 minute warm-up period for the receiver and test equipment.
The High Voltage lead should be securely taped and kept away from the chassis.
Suggested Alignment Tools: GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the negative lead of a variable bias supply to point (A). Positive to chassis. For steps 1 thru 5, set bias for 4.5 volts.
For step 6, set bias for 3 volts.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough generator output to provide a usable indication.
Use only enough sweep generator output to provide a usable pattern on scope.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	High side to ungrounded tube shield floating over Mixer-Osc. Low side to chassis.	Not Used	47.25MC (Unmod.)	Any non-interfering channel	USE VTVM DC probe to point (B). Common to chassis. (Across Video Det. load.)	A1, A2	Adjust for MINIMUM deflection.
2.	"	"	41.25MC	"	"	A3	"
3.	"	"	44.0MC	"	"	A4, A5	Adjust for maximum deflection.
4.	"	"	45.1MC	"	"	A6	"
5.	"	"	42.9MC	"	"	A7	"
6.	"	43.5MC (10MC Swp.)	40.2MC 41.25MC 42.25MC 44.0MC 45.75MC 47.25MC	"	Vert. Amp. thru detector probe to pin 5 (plate) of 1st Video IF Amp. Low side to chassis.	A8, A9 & Mixer Plate Coil	Adjust A8 for 40.2MC kickback peak as in Fig. 1. Adjust A9 and Mixer Plate Coil for response similar to Fig. 1 with markers as shown.

4.5MC TRAP ALIGNMENT

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	High side thru .001mfd to point (B). Low side to chassis.	Not Used	4.5MC (400% AM)	Any non-interfering channel	Vert. Amp. thru detector probe to pin 11 (grid) of picture tube. Low side to chassis.	A10	Adjust for MINIMUM 400% indication.

SOUND IF ALIGNMENT

Connect two matched 100K (±1%) resistors in series from point (C) to chassis. The junction of these two resistors is alignment point (D) as shown on the schematic.
A TV station signal may be substituted for the signal generator if a generator of crystal accuracy is not available.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	High side thru .001mfd to point (B). Low side to chassis.	4.5MC (Unmod.)	Any non-interfering channel	DC probe to point (C). Common to chassis.	A11, A12	Adjust for maximum deflection.
9.	"	"	"	DC probe to point (E). Common to point (D).	A13	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

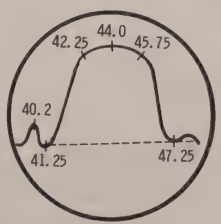
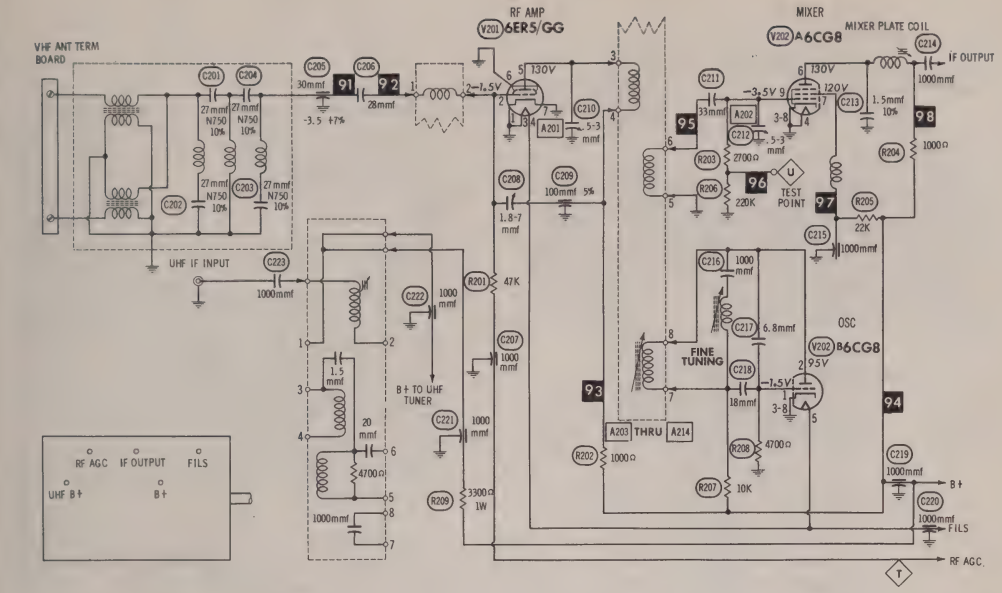
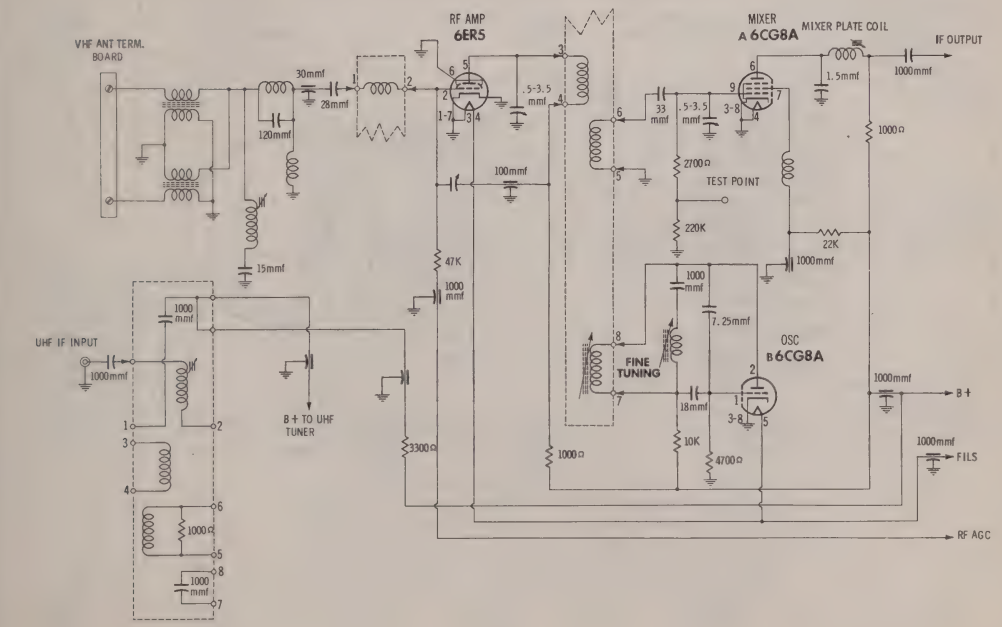


FIG.1



A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE
©Howard W. Sams & Co., Inc. 1960

VHF TUNER with UHF Provisions - 471234 & 471170



A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1960

VHF TUNER with UHF Provisions - 471204

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A201, A202 ..... GENERAL CEMENT #8607, 9291, 9294
WALSCO #2520, 2522, 2523, 2524, 2534, 2537
A203 thru A214 ..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532

VHF RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Connect the negative lead of a 4.5 volt bias supply to point (T). Positive to chassis.
Use 10MC sweep unless otherwise noted.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point (U). Low side to chassis.	A201, A202	Adjust A201 and A202 for response similar to Fig. 201 with markers on shoulders of curve.
2.	"	213MC	211.25MC 215.75MC	13	"		Check for response similar to Fig. 201. If markers fall below 70% on any channel, make compromise adjustment of A201 and A202 with channel switch set to that channel. Check all other channels to see that they have not been seriously affected.
		207MC	205.25MC 209.75MC	12			
		201MC	199.25MC 203.75MC	11			
		189MC	187.25MC 191.75MC	9			
		183MC	181.25MC 185.75MC	8			
		177MC	175.25MC 179.75MC	7			
		85MC	83.25MC 87.75MC	6			
		79MC	77.25MC 81.75MC	5			
		69MC	67.25MC 71.75MC	4			
		63MC	61.25MC 65.75MC	3			
		57MC	55.25MC 59.75MC	2			

FIG. 201

VHF OSCILLATOR ALIGNMENT

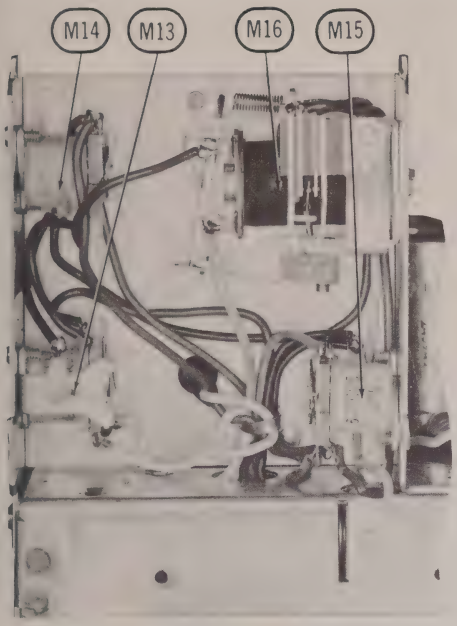
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the Fine Tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Use 10MC sweep unless otherwise noted.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K across Video Det. load.	A203	Adjust to place sound marker in trap notch as in Fig. 202. Video marker should fall at 50%.
		207MC	205.25MC 209.75MC	12		A204	
		201MC	199.25MC 203.75MC	11		A205	
		195MC	193.25MC 197.75MC	10		A206	
		189MC	187.25MC 191.75MC	9		A207	
		183MC	181.25MC 185.75MC	8		A208	
		177MC	175.25MC 179.75MC	7		A209	
		85MC	83.25MC 87.75MC	6		A210	
		79MC	77.25MC 81.75MC	5		A211	
		69MC	67.25MC 71.75MC	4		A212	
		63MC	61.25MC 65.75MC	3		A213	
		57MC	55.25MC 59.75MC	2		A214	

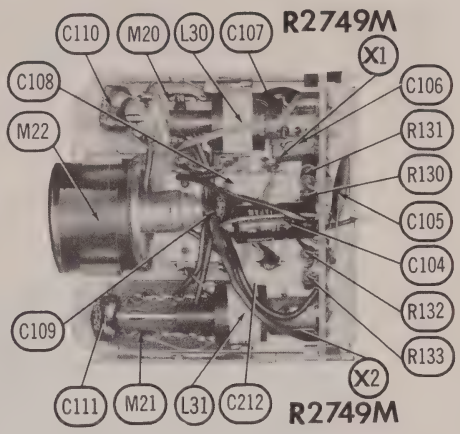
FIG. 202

UHF ALIGNMENT

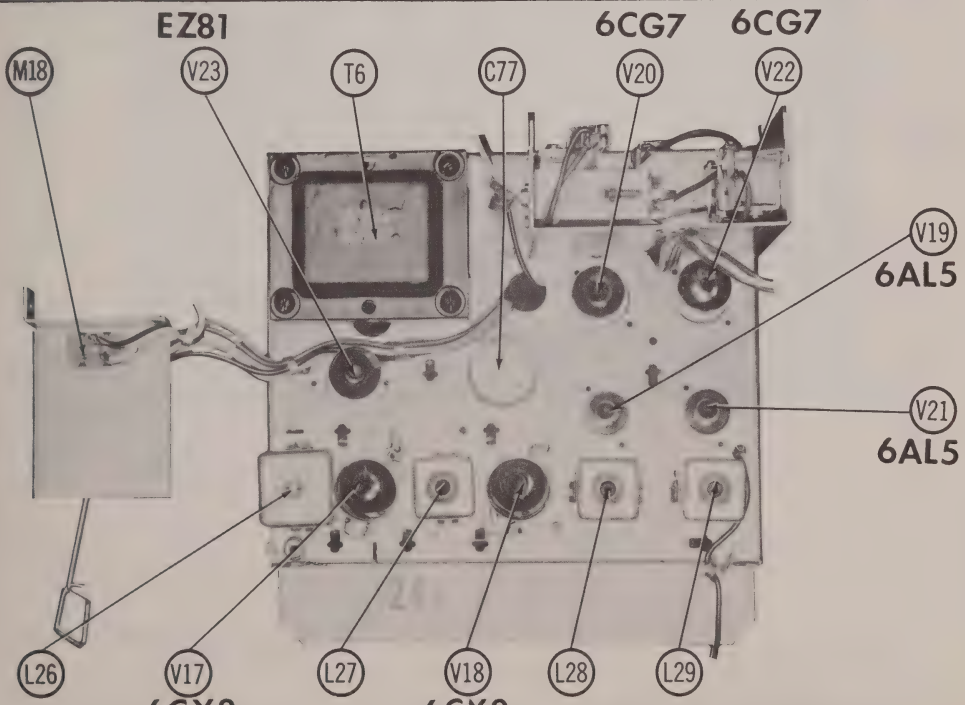
This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be attempted in the field.



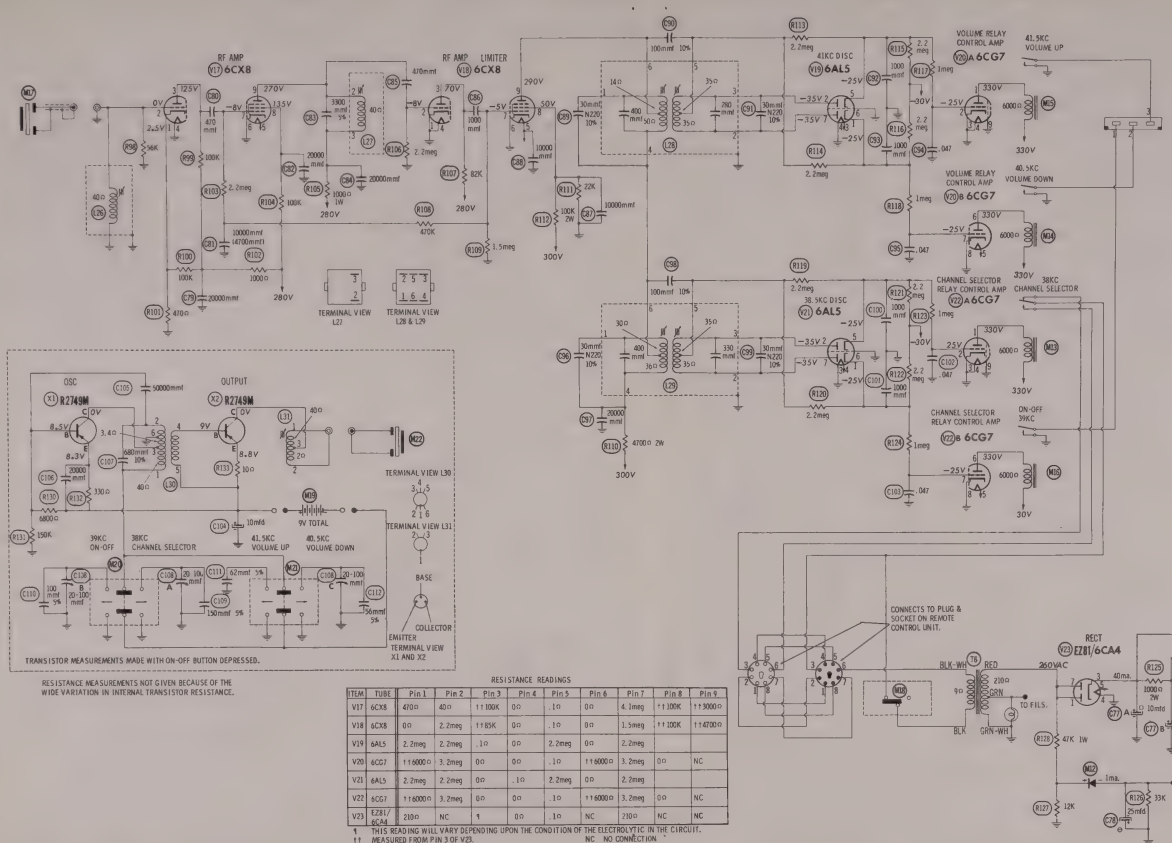
REMOTE
CONTROL RECEIVER SUBCHASSIS



REMOTE
CONTROL TRANSMITTER 471183



REMOTE CONTROL RECEIVER 471184 - TOP VIEW



RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

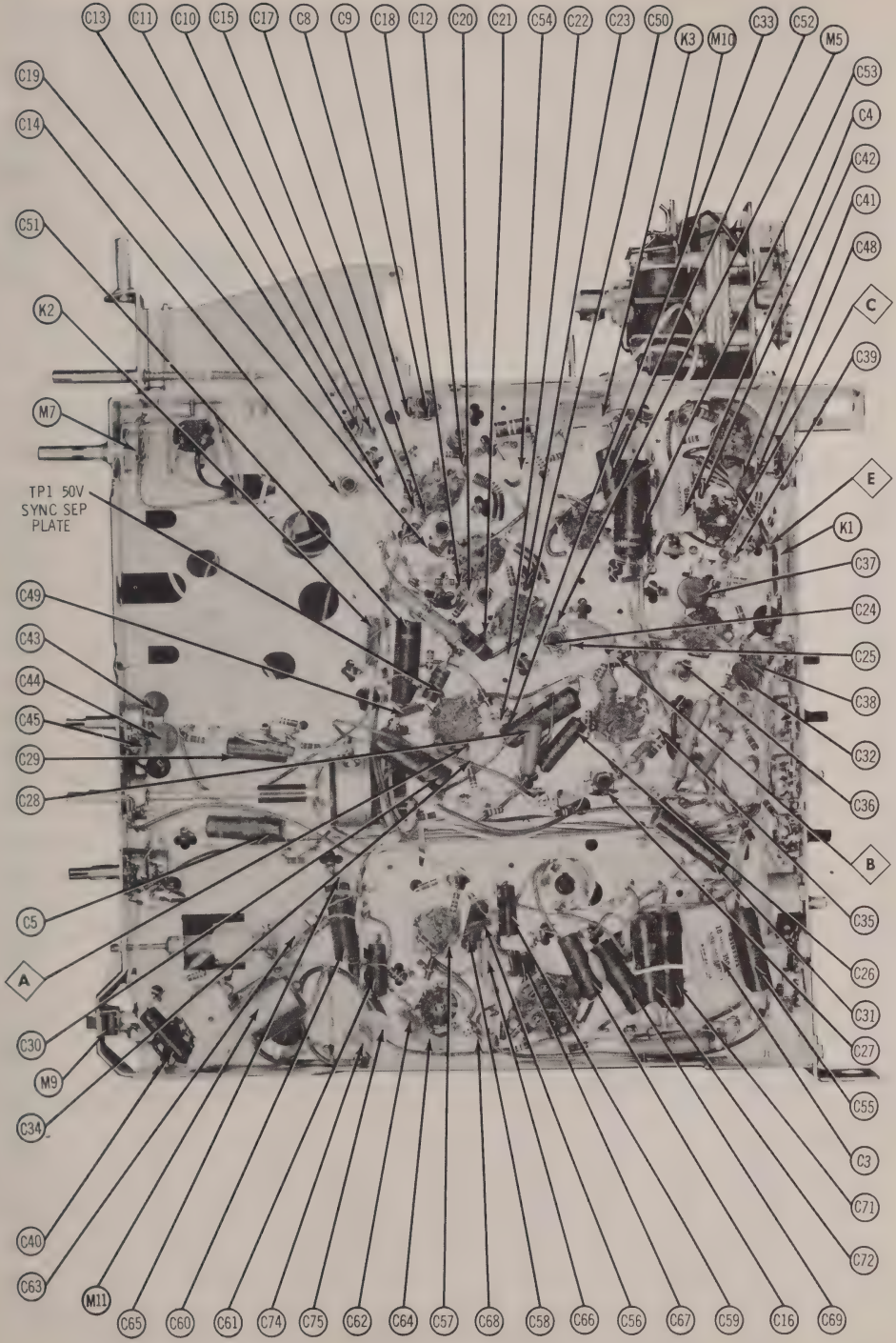
RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V17	6CX8	470Ω	40Ω	††100K	0Ω	.1Ω	0Ω	4.1meg	††100K	††3000Ω
V18	6CX8	0Ω	2.2meg	††85K	0Ω	.1Ω	0Ω	1.5meg	††100K	††470Ω
V19	6AL5	2.2meg	2.2meg	.1Ω	0Ω	2.2meg	0Ω	2.2meg		
V20	6CG7	††6000Ω	3.2meg	0Ω	0Ω	.1Ω	††6000Ω	3.2meg	0Ω	NC
V21	6AL5	2.2meg	2.2meg	0Ω	.1Ω	2.2meg	0Ω	2.2meg		
V22	6CG7	††6000Ω	3.2meg	0Ω	0Ω	.1Ω	††6000Ω	3.2meg	0Ω	NC
V23	EZ81/ 6CA4	210Ω	NC	¶	0Ω	.1Ω	NC	210Ω	NC	NC

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
†† MEASURED FROM PIN 3 OF V23. NC NO CONNECTION

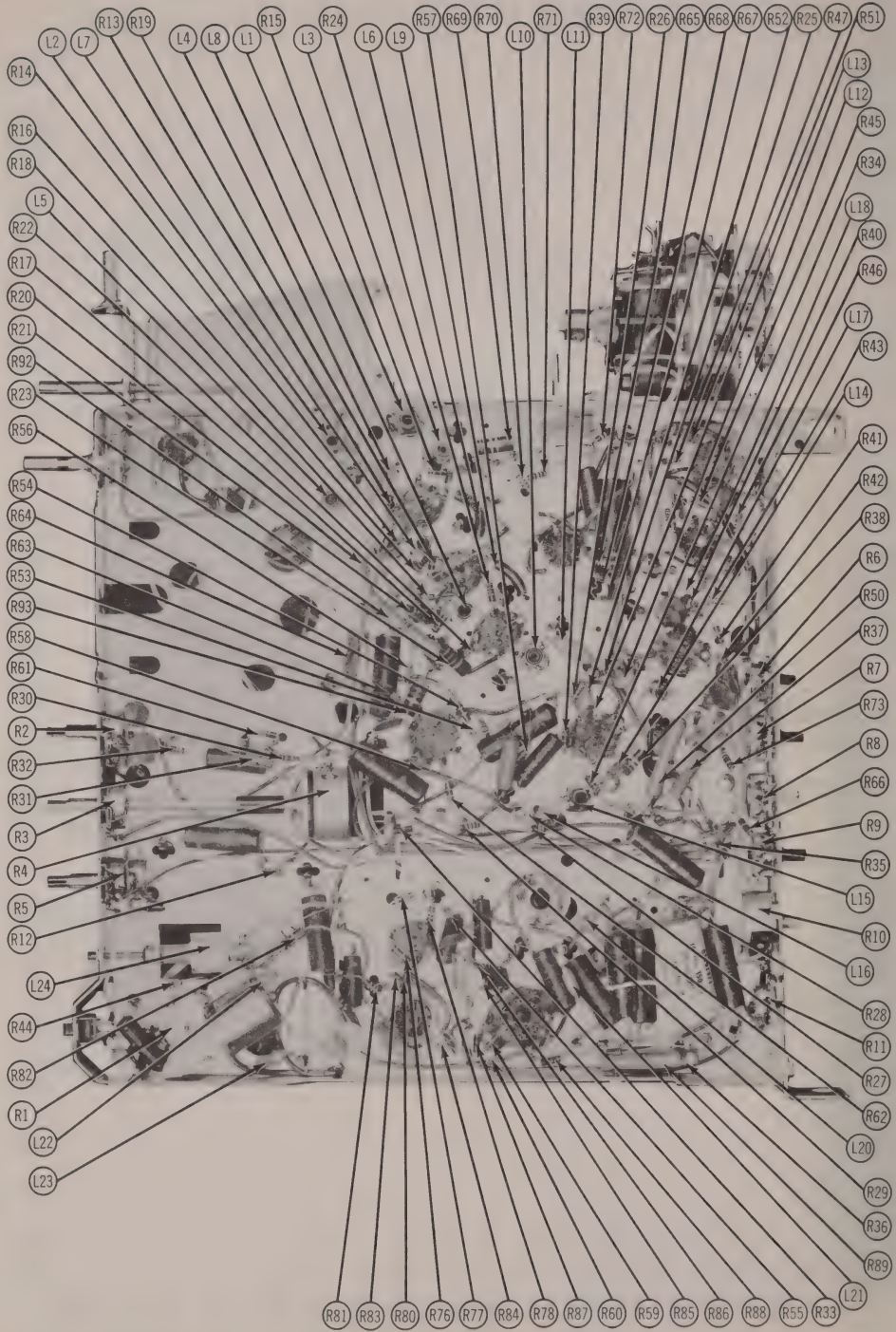
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1960

REMOTE CONTROL RECEIVER 471184 & TRANSMITTER 471183



TV CHASSIS BOTTOM VIEW - CAPACITOR & MISC. IDENT.

SET 503 FOLDER 1



TV CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT.

TV PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (• GENERAL ELECTRIC)	ITEM No.	USE	TYPE (• RAYTHEON • SYLVANIA)
V1	1st Video IF Amp.	6CB6A (6CB6) *	V8	Audio Output	6AQ5A
V2	2nd Video IF Amp.	6CB6A (6CB6) *	V9	Vert. Mult. - Vert. Output	6CM7
V3	3rd Video IF Amp.	6CB6A (6CB6) *	V10	Horiz. AFC	6AL5
V4	Video Output	12BY7A	V11	Horiz. Mult.	6CG7
V5	AGC Keying - Sync Sep. - Noise Inverter	6BU8	V12	Horiz. Output	6DQ6A
			V13	Damper	6AX4GT (6AX4GTA)*
V6	Sound IF Amp.	6AU6	V14	HV Rectifier	1B3GT (1G3GT) *
V7	Ratio Det. - AGC Clamping - AF Amplifier	6T8A	V15	LV Rectifier	5U4GB

* Alternate

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: DUMONT PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
V16	21CBP4A 24AEP4	21CBP4A ① 24AEP4 ①	21CBP4A ① 24AEP4 ①	21CBP4/21CBP4A① 24AEP4 ①	21CBP4/21CBP4A② 24AEP4 ②	① Aluminized ② Silver Screen "85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP.	RATING: VOLT.	DUMONT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	80	400	03190602	AFH1-47	A0510	FP149	TMS-1710	TVL-1735	
C2A	▬ 80	400	03190546	AFH4-57-85	D0660	FP431.7	TMT3508	TVLS-4670.9*	
B	▲4	400			BR445	TC70	TD100-50		
C	■10	400							
D	100	50							
C3	10	350NP	03191371	PRS7555	BR2035 †	TC65 †	TD-20-350 †	TVANS-1604.1*	
C4	5	100	03138367	SRE150V5	BBR4-150	TC40	TD-4-150	TVA-1403	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
† Use 2 units. Connect negative terminals together. Connect positive terminals into circuit the same as original non-polarized unit.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	.068 200V 10%		V84C2S68-10%		PM4S68	4DP-3-683		4TM-S68
C6	20000		BPD-02	DD-203	BYB8S2	CCD-203	B-120	5HK-S20
C7	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C8	90 5%		1469-000091	TCZ-91	5R5T91	CM-19B-910J		MS-491
C9	68 5%		1469-000068	TCZ-68	5R5T68	CM-19B-680J	CNO-468	MS-468
C10	5.6 NPO 5%							10TCC-V56
C11	33 NPO		NPO-DI 33	DTZ-33	C10Q33C	CCTO-330	CNO-433	10TCC-Q33
C12	4.7 NPO 5%		NPO-DI 4.7	DTZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C13	1.5 10%		NPO-SI 1.5	TCZ-1R5	C10V15C		CNO-510	10TCC-V15
C14	27 NPO		NPO-DI 25	TCZ-27	C10Q27C	CCTO-270	CNO-427	10TCC-Q27
C15	1500		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C16	.047 200V 10%		V84C2S47-10%		PM2S47	4DP-3-473	GEM-1615	2TM-S47
C17	1500		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C18	1500		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C19	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C20	1500		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C21	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C22	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C23	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C24	3.9 NPO ±.25mfd				C10V4C			10TCC-V39
C25	4.7 ±.5mmf		NPO-DI 4.7	DTZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C26	.015 400V		P488N-015	DD-153	CUB6S15	4DP-1-153	GEM-4115	4TM-S15
C27	47 NPO		NPO-DI 47	DTZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47
C28	.0033 600V		P688N-0033	D6-332	CUB6D47	6DP-1-332	GEM-6233	6TM-D33
C29	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C30	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C31	.033 600V		P688N-033	DD-303	CUB6S33	6DP-3-333	GEM-6133	6TM-S33
C32	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C33	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P1
C34	100		BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C35	2.2 10%		NPO-DI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C36	47 NPO		NPO-DI 47	DTZ-47	C10V47C	CCTO-470	CNO-447	10TCC-Q47
C37	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C38	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C39	470		SI 470	D6-471	BYA10T47	CCD-471	B-347	10TS-T47
C40	.015 200V		P288N-015	DD-153	CUB6S15	4DP-1-153	GEM-4115	4TM-S15
C41	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C42	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C43	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C44	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C45	470		SI 470	D6-471	BYA10T47	CCD-471	B-347	10TS-T47
C46	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C47	2200 10%		DI-2200		PM6D22	CCD-222	GP222	10TS-D22
C48	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C49	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C50	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C51	.033 600V		P688N-033	DD-303	CUB6S33	6DP-3-333	GEM-6133	6TM-S33
C52	.01 200V		P288N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C53	.1 600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10
C54	.015 1600V 10%				DPMS16S15	16DP-4-153	GEM-161125	
C55	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C56	68 N330 10%			TCA-68		*		10TCS-Q68
C57	75 N470 10%					*		
C58	.0027 400V		P488N-0033	D6-272	DPMS6D27	6DP-1-272	B-227	6PS-D27
C59	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C60	.068 200V		P288N-068		CUB4S68	4DP-3-683	GEM-4168	4TM-S68
C61	.0022 600V 10%		V84C6D22-10%		PM6D22	6DP-1-222	GP222	6TM-D22
C62	100 N750 10%		N750-DI 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C63	.0033 400V 10%		V84C4D33-10%		PM6D33	6DP-1-332	GEM-16233	6TM-D33

TV PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C84	390 5%		1469-00026		BA39	CM-15B-390J		39S-339
C85	470 5%		BPD-00047	DD-471	BYA397Y47	CCD-471	B-347	10TS-747
C86	390 5%		1469-00029		SRST39	CM-15B-39J		MS-339
C87	330 10%		1469-00033	TCZ-330	SRST33	CM-15B-33K	CNO-322	MS-333
C88	4700		BPD-0047	DD-472	BYA500T47M	CCD-472	S-247	518K-D47
C89	.047 600V		29489-047	DD-503	CUB4047	42P-3-473	GFM-4147	47M-047
C90	68 N330 10%			TCA-68				10TC8-G68
C91	.1 600V 10%		V84C4P1-10%		PME5P	82P-4-104	GFM-1001	87M-P10
C92	.1 200V 10%		V84C2P1-10%		PME3P1	22P-3-104	GFM-301	37M-P10
C93	.05 1000V			DDS0-T50	BYA3Q5T5			30GA-Q75
C94	20000		BPD-021	DD-203	BYD802	CCD-203	B-130	58K-S20
C95	30000		BPD-03	DD-303	BYD832	CCD-303	B-130	58K-S30
C96	.047 600V		P088H-047	DD-503	CUB5847	82P-3-473	GFM-4147	47M-047

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA DUMONT Part No.	CENTRALAB Part No.	CLAROSTAT Part No.	CTS - IRC Part No.	MALLORY Part No.	INSTALLATION NOTES
R1	1meg	)	390614					Volume
	600K Tap	)						
R2A	1.5meg	)	01071515			† QJ-1503	▲ UE4170	Base
B	1Meg	)						Treble
R3A	500K	)	01071433	F1-46		◆ QJ-1103	F35SA	Brightness
B	5Kohm	)		Not Req.			CM75D	
R4A	500KΩ	5(SW)	01028092	WW-502	WPK5000			Contrast
B	2Kohm	)		Not Req.	PS-3			
R5A	2meg	)	01071351	F1-67				Fringe Lock (Sync Stab.)
B	150K	)		S2-51		†† QJ-1504	▲ UE4169	Vert. Hold
R6A	500K	)	01050043	T7-59	B47-500K-S	BU-153	PTA25L	RF AGC Delay
B	50Kohm	)		Not Req.	Not Req.	Not Req.	PTA25L	
R7A	1.75meg	)	01071743	T7-75	B47-2meg-S	BU-159	PTA25L	Dumonitor (AGC)
B	150Kohm	)		Not Req.	Not Req.	TM4	PTA25L	
R8A	3000Ω	)	01056035	A8-8	A47-3000-S	BU-108	Not Req.	Vert. Linearity
B	50ohm	)		AK-1	FS2 1/4	TM4	Not Req.	
R9	1meg	)	01071091	T7-90 *	B47-1.5meg§	FTA75S1 *	PTA75S1 *	Vert. Size (Height)
	Stop @ 6.5meg							
R10A	15K	2(SW)	01070521	WW-153	A58-15K	W11-15	R35M1	Horiz. Size
B	2Kohm	)		Not Req.	FK2-1	SK5	Not Req.	
R11A	200K	)	01071041	T7-46	B47-200K-S	BU-139	U43	Horiz. Frequency
B	5Kohm	)		Not Req.	Not Req.	TM4	Not Req.	

* Use long resistor in series with right hand terminal, viewed shaft end terminals down.

†† "CONCENTRELIT" Equivalent: K-6 Kit with Base Elements and Shafts: BU-159, P17-024 (Panel)
(Not available as a factory assembled unit.) BU-156, R1-103 (Rear)
RS (Bushing)
† "CONCENTRELIT" Equivalent: K-3 Kit with Base Elements and Shafts: BU-139, P17-024 (Panel)
(Not available as a factory assembled unit.) BU-137, R1-103 (Rear)
RS (Bushing)
‡ "CONCENTRELIT" Equivalent: K-3 Kit with Base Elements and Shafts: BU-153, P1-024
(Not available as a factory assembled unit.)
◆ "STA-LOC" Equivalent: FA15SR, RU8SA, C6S9T, S11S5.
▲ "STA-LOC" Equivalent: F23S1, RU7S41, C6S9T, S11S5.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R12	2.2meg	
R13	2700Ω	
R14	470Ω	
R15	47Ω	
R16	22K	
R17	470Ω	
R18	100K	
R19	18Ω	
R20	680Ω	
R21	100K	
R22	2200Ω	
R23	8200Ω 2W	
R24	180Ω	
R25	3300Ω	
R26	4700Ω	
R27	15K	
R28	39K	
R29	27K	
R30	6.8meg	
R31	620Ω 1W	
R32	470Ω	
R33	220K	
R34	27K	
R35	100K	
R36	47000 2W	
R37	12K 2W	
R38	27K 1W	
R39	27Ω	
R40	100K	
R41	1000Ω	
R42	470Ω	
R43	390Ω	
R44	22K	
R45	10meg	
R46	470K	
R47	470K	
R48	470Ω 1W	
R49	150K	
R50	1500Ω 4W	Pt. #2320680 or Pt. #2342870 IRC #PW5-1500J
R51	220Ω 1W	
R52	47K	
R53	120K	
R54	2.7meg	
R55	150K	
R56	270K	
R57	2.2meg	
R58	2.7meg	
R59	1.8meg	
R60	180K	
R61	330K	
R62	3.3meg	
R63	100K	
R64	22K	
R65	390K	
R66	1meg	
R67	2.2meg	
R68	10K	
R69	100K 2W	
R70	47K	
R71	27K	
R72	100K	
R73	820Ω	
R74	560Ω	
R75	560Ω	
R76	1meg	
R77	1meg	
R78	1000Ω	
R79	22K 1W	
R80	1.2meg	
R81	68K	
R82	8200Ω 1W	
R83	1300Ω	
R84	47K	
R85	120K	
R86	18K	
R87	100Ω	
R88	100Ω	
R89	10K 4W	Pt. #2320760 or Pt. #2342880 IRC #PW5-10KΩ
R90	4700Ω	
R91	10K	Pt. #2320760 or Pt. #2342880 IRC #PW5-10KΩ
R92	10K 4W	
R93	8200Ω 2W	
R94	220K	
R95	39Ω 4W	Pt. #294233 IRC #PW5-39Ω
R96	36Ω 4W	Pt. #294152 IRC #PW5-36Ω
R97	56000Ω 4W	Pt. #294139 IRC #PW5-56000Ω

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	DUMONT PART No.	REPLACEMENT DATA
K1	Discriminator Comp.	680mmf, 3300mmf, 10000mmf, 220, 330K	6800187	
K2	Vert. Integrator	2400mmf, 90K	58000481	Centralab PC-407
K3	Vert. Feedback		58000483	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA DUMONT Part No.	Merit Part No.	Miller Part No.	Ram Part No.	Stancor Part No.	NOTES
L1	40. 2MC Trap	21044845	VT-153	6238	VT-4	RTC-8535	
L2	41. 25MC Trap	713046	VT-131	6236	VT-4	RTC-8536	
L3	47. 23MC Trap	21045181	VT-133	6235		RTC-8556	
L4	1st Video IF	21044972	VT-130	6238	VT-4	RTC-8526	
L5	47. 25MC Trap	21044932	VT-153	6235		RTC-8556	
L6	Fil. Choke	21041782	DC-562	4604	VP-9	RTC-8518	1.5uh
L7	2nd Video IF	21050995	VT-130	6239	VT-3	RTC-8531	
L8	3rd Video IF	21050995	VT-130	6239	VT-3	RTC-8531	
L9	Fil. Choke	21041782	DC-562	4604	VP-9	RTC-8518	1.5uh
L10	4th Video IF	21051881					
L11	RF Choke	21034456	RC-561	4601		RTC-4602	1uh
L12	RF Choke	21041253	RC-564	6154	VP-5	RTC-8533	200uh
L13	Series Peaking	21041351	VT-194	6113	VP-4	RTC-8574	106uh
L14	RF Choke	21050370	EW-631	4609		RTC-8519	5.6uh
L15	4.5MC Trap	21031753	VT-151	1469	SF-3	RTC-8502	
L16	Series Peaking	21041351	VT-194	6113	VP-4	RTC-8574	106uh
L17	Sound IF	21031733	VT-119	1469	SF-3	RTC-8502	
L18	Ratio Detector	21050043	VT-115	6171	SD-4	RTC-8532	
L19	RF Choke	21050550	RC-566	4611		RTC-8521	9.3uh
L20	RF Choke	21050550	RC-566	4611		RTC-8521	9.3uh
L21	RF Choke	21050520	EW-631	4609		RTC-8519	4.7uh
L22	RF Choke	7050339	VT-192	6183		RTC-8594	30uh
L23	RF Choke	7050338	VT-192	6183		RTC-8594	20uh

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA DUMONT Part No.	Merit Part No.	Miller Part No.	Ram Part No.	Rogers Part No.	Stancor Part No.	Thordarson Part No.	Triad Part No.
L24	Horiz. Stab.	21051571	TV-163	6210	K-103	RC110	RTC-8612	HS-8	WLC-25

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT 1000 ~	REPLACEMENT DATA DUMONT Part No.	Merit Part No.	Ram Part No.	Stancor Part No.	Thordarson Part No.	Triad Part No.	NOTES
L25	.380A	45Ω	1. @ Hy	21014874	C-3996		C-2328	26C93	C-17X	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	SEC. 1	SEC. 2	DUMONT Part No.	Merit Part No.	Ram Part No.	Stancor Part No.	Thordarson Part No.	Triad Part No.	NOTES
T1	117V 60CYCS @ 1.75A	380A @	1V @ 3A	30011386						
	SEC. 3									
	24V @ 2.6A Tap @ 6.3V @ 7.5A									

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	DUMONT Part No.	Merit Part No.	Ram Part No.	Rogers Part No.	Stancor Part No.	Thordarson Part No.	Triad Part No.	NOTES
T2	Vert. Output	20010452	A-3039	VT63		VO-101	26S54	A-12UZ	
T3	Yoke Horiz. (19MIL) (90°) Vert. (40MIL)	29014495	MDF-92 ①	VW719/43 ①	PCM2045 ①	DY-16A ①	T-18 ①	V-41 & W41	
	Rear Cover and Centering Device							Y-113	
T4	Horiz. Output	7310168		HVD-138 *	X181 *			D-612 *	
	Alt. Horiz. Output	800304							

① Use original rear cover and centering device, and yoke damping network if necessary.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

ORIGINAL TERMINAL CONNECTIONS	Merit Replacement Connections	Ram Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
9	8	9				8
8	8	5 & 6				6
2	2	5 & 6				3
7	7	4				7
4	4	2				4
1	1	1				3
3	3	3				1

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	SEC.	DUMONT Part No.	Merit Part No.	Ram Part No.	Stancor Part No.	Thordarson Part No.	Triad Part No.	NOTES
T5	5700Ω	3-4Ω	7314185 ①	A-2930	AU-601	A-3877	24S51	S-3X	① Alternate Pt. #734186

SPEAKER

ITEM No.	TYPE	FIELD	V C IMP	REPLACEMENT DATA DUMONT Part No.	QUAM Part No.	NOTES
SP1	6" PM		3-4Ω	18003708 ①	6A15	① Used in Models Colony, Hampton, DeVille
	4"x 6" PM			18003923 ②		② Used in Models Oxford, Boston, Biarritz
	4"x 6" PM			180222 ③		③ Used in Model Montclair
	8" PM			18004181 ④		④ Used in Models Lauderdale, Marquette, Sussex, Norwood, Bradford
	Electrostatic			89015853 ⑤		⑤ Used in Models Lauderdale, Marquette, Sussex, Norwood, Bradford
	Electrostatic			89015851 ⑤		
						⑥ Used in Models DeVille, Montclair, Hampton

RECTIFIERS

ITEM No.	RATING (Measured)	REPLACEMENT DATA DUMONT Part No.	ITT Part No.	RCA Part No.	SARKES TARZIAN Part No.	SYLVANIA Part No.	NOTES
M2	.100A	R17068	HA1544	1N1763	2F4	SR200	Silicon

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA DUMONT Part No. FUSE	HOLDER	LITTELFUSE Part No. FUSE	HOLDER	BUSS Part No. FUSE	HOLDER
M3	N	7/10A 125V 3/8			333.700 (N 7/10 125V 3/8)	346900	N 7/10	HN 1/2 to 3/4
M3	2½" length of #26 wire							
M4	3AG	3/10A 250V 3/8			313.300 (3AG 3/10A 125V 3/8)		MDV 3/10	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA DUMONT Part No.	RAYTHEON Part No.	SYLVANIA Part No.	NOTES
M5	1N295	26000891	1N295	1N295	Video Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	DUMONT Part No.	NOTES
M6	Tuner	471134	VHF, STANDARD COIL REPLACEMENT Part #CG4230A
	Tuner	471304	VHF
	Tuner	471170	VHF
	Tuner	89014455	UHF
MT	Switch	510187	Manual Off-On (SPDT) & Volume Up or Down (Momentary Type)
M8	Switch	09030750	Manual Channel Selector (SPDT)
M9	Switch	510088	Phono (DPDT Slide Type)
M10	Power Tuning Assy.		Complete (Includes Motor and Gear Box)
M11	Motor		Volume Control

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	450S6735	All Models except Montclair, Bradford
Safety Glass	450S6734	Montclair, Bradford Models
Mask	84015811	Gold, All Models except Montclair, Bradford, Boston
Mask	84015813	Silver, Lauderdale, Hampton, Boston, Norwood Models
Mask	84015891	Gold, Montclair, Bradford Models
Knob	45008241	Channel Selector, Gold, All Models except Boston, Marquette, Norwood
Knob	45008243	Channel Selector, Silver, Lauderdale, Hampton, Boston, Norwood, DeVille Models
Knob	46119	Bar, Channel Selector, DeVille, Norwood, Bradford, Marquette Models
Knob	46125TB	Permalure, Gold, All Models except Boston
Knob	46130TA	Permalure, Silver, Lauderdale, Hampton, Boston, Norwood Models
Knob	45009981	Volume, Gold, All Models except Boston
Knob	45009983	Volume, Silver, Lauderdale, Hampton, Boston, Norwood Models
Knob	45009931	Base, Brightness, Fringe Lock, Sync, Color
Knob	46190A	Treble, Contrast, Vertical Hold, Small, Inner
Knob	45000345	Surround Gold
Leg	33038341	Mahogany, Hampton Models
Leg	33038342	Limed Oak, Hampton Models
Leg	33038343	Walnut, Hampton Models
Leg	630363	Oxford Models
Leg	630361	Boston Models
Leg	630362	Biarritz Models
Leg	630365	Marquette Models
Leg	630364	Norwood Models
Leg	33038304	DeVille Models
Leg	630343	Mahogany, Left Front, Right Rear, Montclair Models
Leg	630344	Mahogany, Left Rear, Right Front, Montclair Models

WIRING DATA

High Voltage Lead	Use BELDEN No. 8868
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8235
300Ω Antenna Lead-In	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8486 (Round) - 6 Conductor

DUMONT SERIES RA600A, RA601A
(CH. 120600A, 120601A, 471183, 471184)

FOLDER 1

REMOTE CONTROL RECEIVER PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V17	RF Amplifier	6CX8	V21	38.5KC Disc.	6AL5
V18	RF Amp. - Limiter	6CX8	V22	Channel Sel. Relay Control Amp.	6CG7
V19	41KC Disc.	6AL5	V23	Rectifier	EZ81/6CA4
V20	Vol. Relay Control Amp.	6CG7			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	DUMONT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C77A	■10	300	925481	AFH3-27	C0210	FP330.5	TMT3292	TVL-3580	
B	10	300							
C	▲10	300							
C78	25	50		PRS1340	BBR25-50	TC36	TD-25-50	TVA-1306 ①	

① Some versions may use a 10mfd @ 50V (Pt. #925480) in this application.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C79	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C80	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C81	10000	(4700) †	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C82	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C83	3300 5%		1464-0033		1R5D33	CM-20B-332J	MCE462	MS-233
C84	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C85	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C86	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C87	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C88	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C89	30 N220 10%					*		10TCR-Q33
C90	100 10%		1469-0001	TCZ-100	22R5T1	CM-19B-101K	MCB235	MS-31
C91	30 N220 10%					*		10TCR-Q33
C92	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C93	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C94	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C95	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C96	30 N220 10%					*		10TCR-Q33
C97	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C98	100 10%		1469-0001	TCZ-100	22R5T1	CM-19B-101K	MCB235	MS-31
C99	30 N220 10%					*		10TCR-Q33
C100	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C101	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C102	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C103	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47

† Alternate Value. * Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R98	56K	
R99	100K	
R100	100K	
R101	470Ω	
R102	1000Ω	
R103	2.2meg	
R104	100K	
R105	1000Ω 1W	
R106	2.2meg	
R107	82K	
R108	470K	

ITEM No.	RATING	REMARKS
R109	1.5meg	
R110	4700Ω 2W	
R111	22K	
R112	100K 2W	
R113	2.2meg	
R114	2.2meg	
R115	2.2meg	
R116	2.2meg	
R117	1meg	
R118	1meg	
R119	2.2meg	

ITEM No.	RATING	REMARKS
R120	2.2meg	
R121	2.2meg	
R122	2.2meg	
R123	1meg	
R124	1meg	
R125	1000Ω 2W	
R126	33K	
R127	12K	
R128	47K 1W	
R129	1000Ω 3W	IRC #PW5-1000Ω

COILS (RF-IF)

ITEM No.	USE	DUMONT PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Stancor PART No.	NOTES
L26	Input Coil	738167					
L27	Interstage Coil	720353					
L28	Discriminator (41KC)	708365					
L29	Discriminator (38.5KC)	708364					

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	DUMONT PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T6	117V @ .40A	260V @ .040A DC Tap @ 6.3V @ 3.2A	730088						

RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	DUMONT PART No.	ITT PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M12	.001A	817084	1159		12		Selenium Type

REMOTE CONTROL RECEIVER PARTS LIST (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	DUMONT PART No.	NOTES
M13	Relay	515006 or 515005	Channel Selector
M14	Relay	515006 or 515005	Volume Down
M15	Relay	515006 or 515005	Volume Up
M16	Relay	515007 or 515008	Off-On
M17	Transducer	825001	
M18	Switch	510168	Spring loaded to closed position

REMOTE CONTROL TRANSMITTER PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	R2749M *	Oscillator				PNP
X2	R2749M *	Output				PNP

* Alternate Type 2N408 (Pt. #815058)

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	DUMONT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C104	10	25	925458	XPP-25010	NLW10-25	TT50X10	ML10-25	TE-1204	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C105	50000		BPD-05	DD-503	H-05S5		TA-150	TG-S50
C106	20000		C80V203AM	DDM-203	H-05S2		TA-120	TG-S20
C107	680 10%		1469-00068		5R5T68	CM-19B-681K	MCJ249	MS-368
C108A	20-100					423		
B	20-100					423		
C	20-100					423		
C109	150 5%		1469-00015	TCZ-150	22R5T15	CM-19B-151J	MCE236	MS-315
C110	100 5%		1469-0001	TCZ-100	22R5T1	CM-19B-101J	MCE235	MS-31
C111	62 5%		1469-00062	TCZ-62	22R5Q62	CM-19B-620J		MS-462
C112	56 5%		1469-00056	TCZ-56	22R5Q56	CM-19B-560J	CNO-456	MS-456

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R130	6800Ω	
R131	150K	

ITEM No.	RATING	REMARKS
R132	330Ω	

ITEM No.	RATING	REMARKS
R133	10Ω	

COILS (RF-IF)

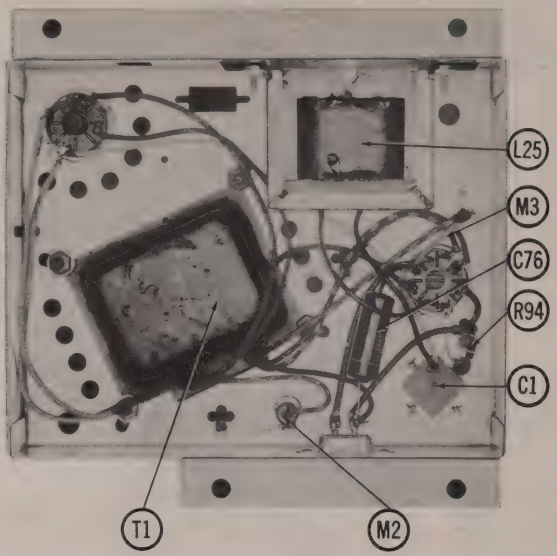
ITEM No.	USE	REPLACEMENT DATA					NOTES
		DUMONT PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Stancor PART No.	
L30	Osc. Coil	715133					
L31	Output Coil	738166					

BATTERIES

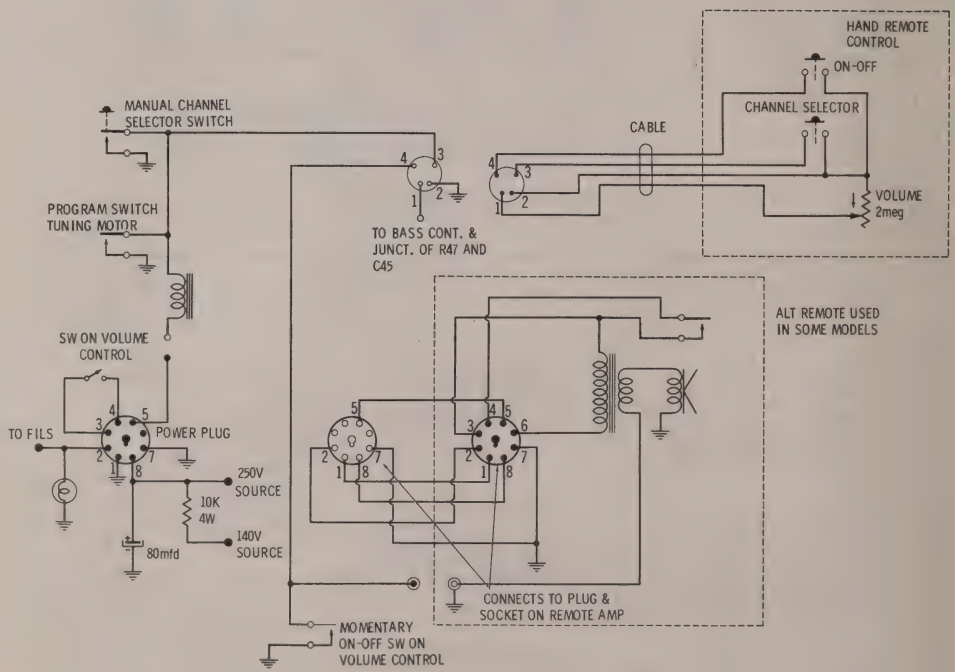
ITEM No.	VOLTAGE	DUMONT PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M19	9V	818125		2U6		216		M-1604	

MISCELLANEOUS

ITEM No.	PART NAME	DUMONT PART No.	NOTES
M20	Switch	510163	Channel Selector (DPDT Slide Type, Spring loaded to Return Position)
M21	Switch	510163	Volume Up-Down (DPDT Slide Type, Spring loaded to Return Position)
M22	Transducer	825001	



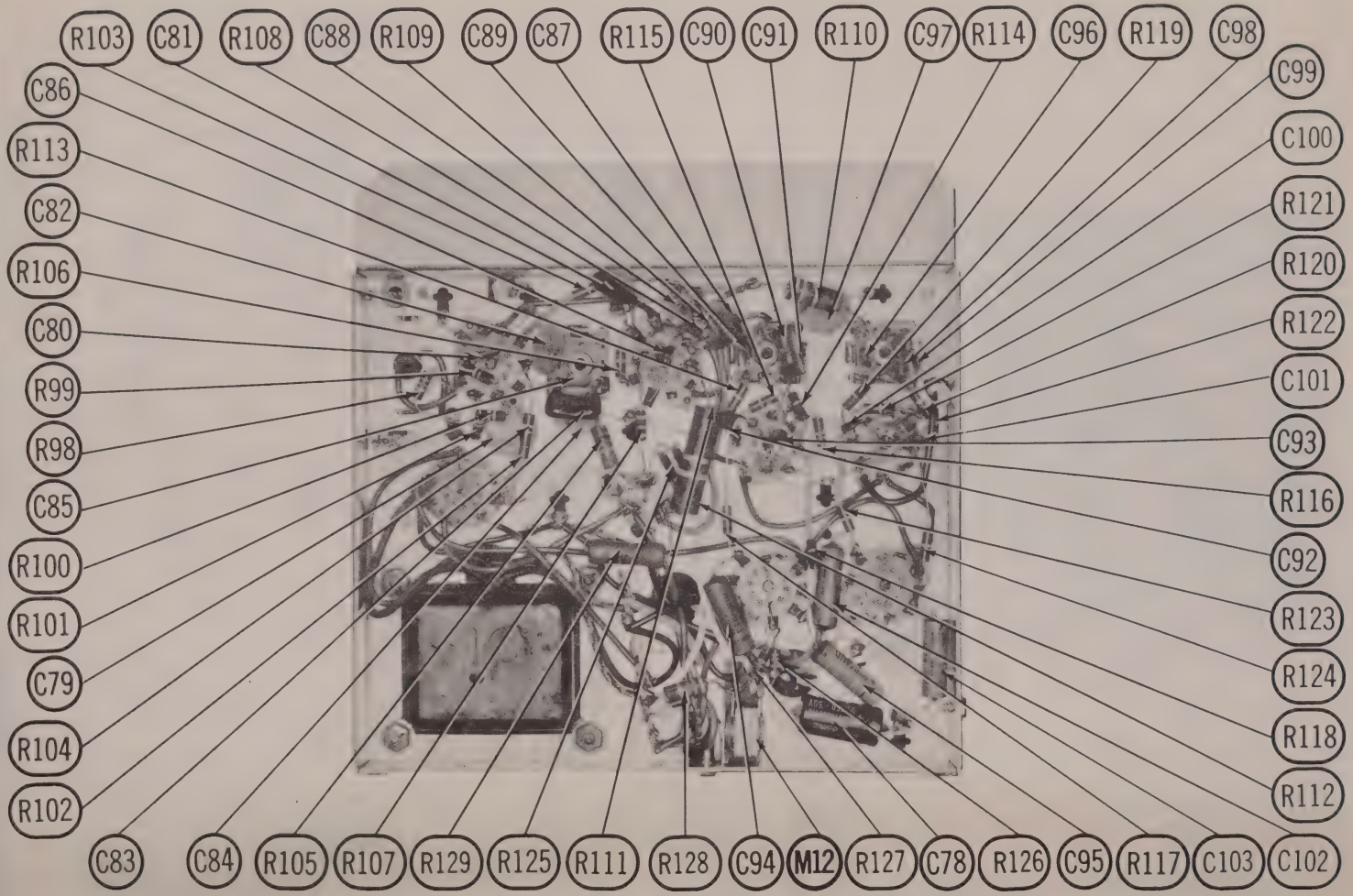
TV LOW VOLTAGE POWER SUPPLY CHASSIS



A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1960

ALTERNATE REMOTE CONTROL



REMOTE CONTROL RECEIVER 471184 - BOTTOM VIEW

TUNER PARTS LIST AND DESCRIPTIONS

471234

TUBES

• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	6ER5/GG	V202	Mixer - Osc.	6CG8A

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C202	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C203	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C204	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C205	30 -3.5 +7%							
C206	28			TCZ-27	C10Q27C	CCTO-270	CNO-427	10TCC-Q27
C207	1000		EF-001	MFT-1000		CCF-102	CT280A	
C208	1.8-7			829-7				
C209	100 5%		EF-0001	MFT-100				
C210	.5-3			829-3		CV-1	CT565	
C211	33		NPO-DI 33	DTZ-33	C10Q33C	CCTO-330	CNO-433	10TCC-Q33
C212	.5-3			829-3		CV-1	CT565	
C213	1.5 10%		NPO-SI 1.5	TCZ-1R5	C10V15C		CNO-515	10TCC-V15
C214	1000		BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C215	1000		EF-001	MFT-1000		CCF-102	CT280A	
C216	1000		BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C217	6.8		NPO-DI 6.8	DTZ-6R8	C10V68C	CCTO-6R8	CNO-568	10TCC-V68
C218	18		NPO-DI 20	TCZ-18	C10Q18C	CCTO-180	CNO-418	10TS-Q18
C219	1000		EF-001	MFT-1000		CCF-102	CT280A	
C220	1000		EF-001	MFT-1000		CCF-102	CT280A	
C221	1000		EF-001	MFT-1000		CCF-102	CT280A	
C222	1000		EF-001	MFT-1000		CCF-102	CT280A	
C223	1000		BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10

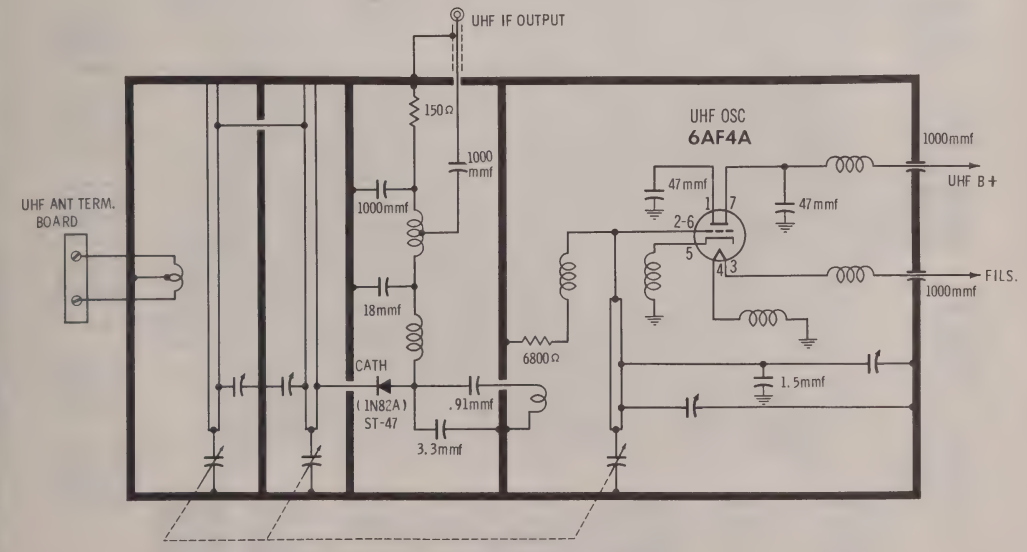
RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R201	47K	
R202	1000Ω	
R203	2700Ω	

ITEM No.	RATING	REMARKS
R204	1000Ω	
R205	22K	
R206	220K	

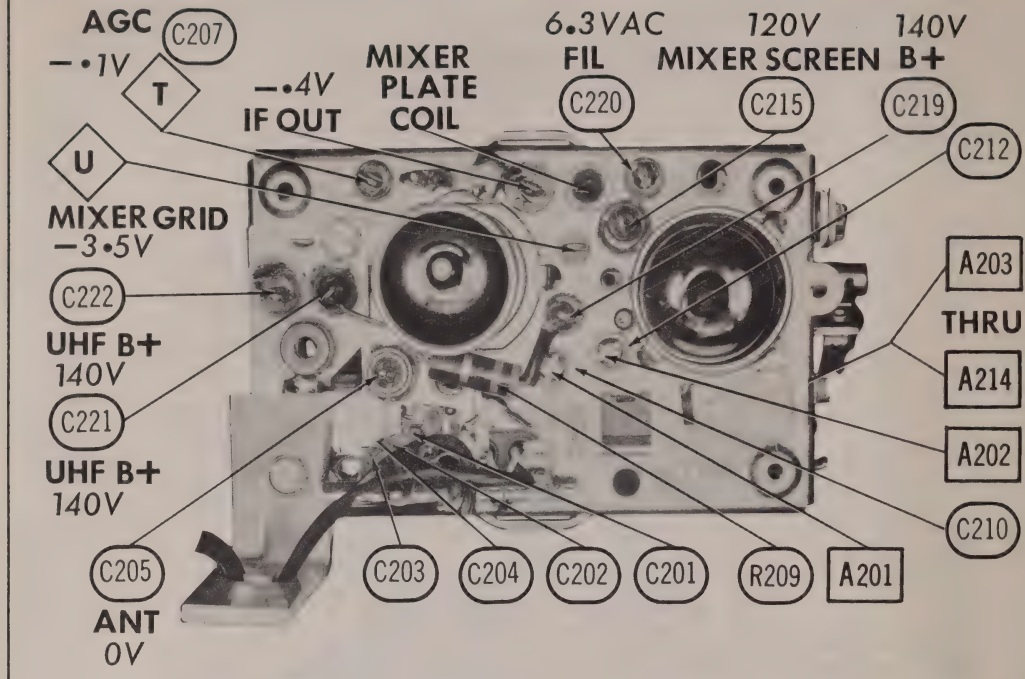
ITEM No.	RATING	REMARKS
R207	10K	
R208	4700Ω	
R209	3300Ω 1W	



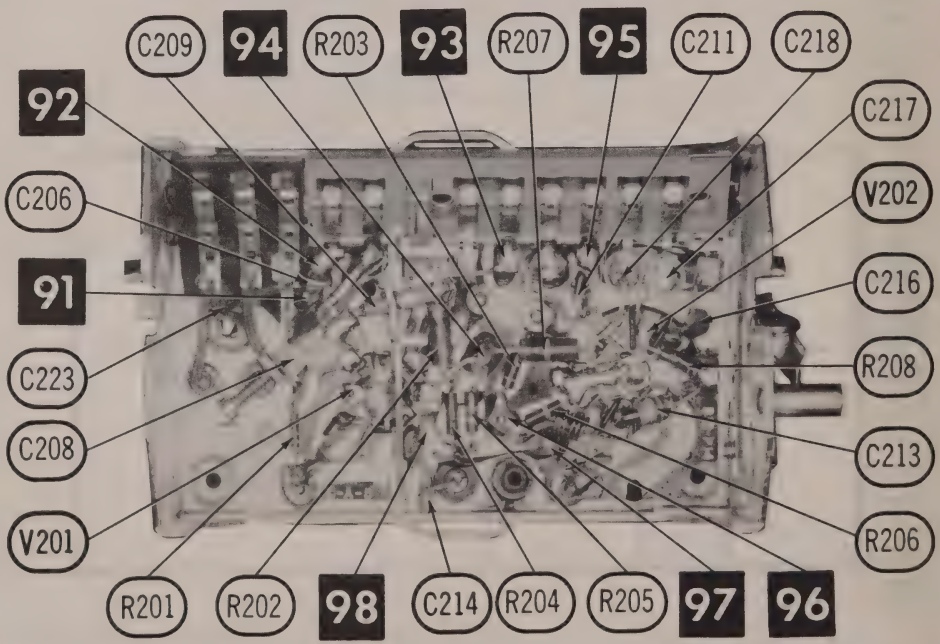
A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1960

UHF TUNER 89014455



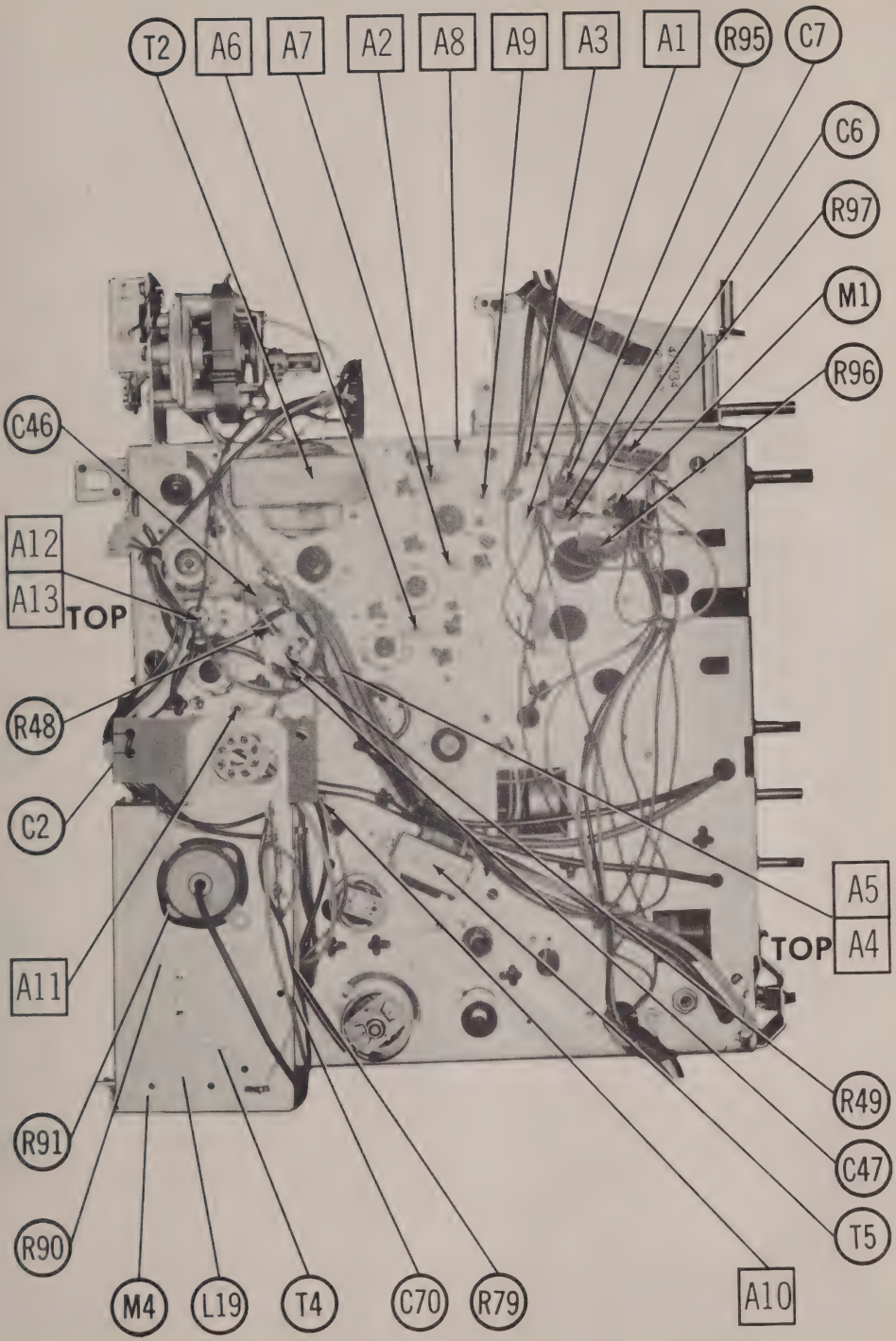
VHF TUNER with UHF Provisions 471234 — TOP VIEW



A Howard W. Sams CIRCUITRACE® Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

VHF TUNER with UHF Provisions 471234 - BOTTOM VIEW



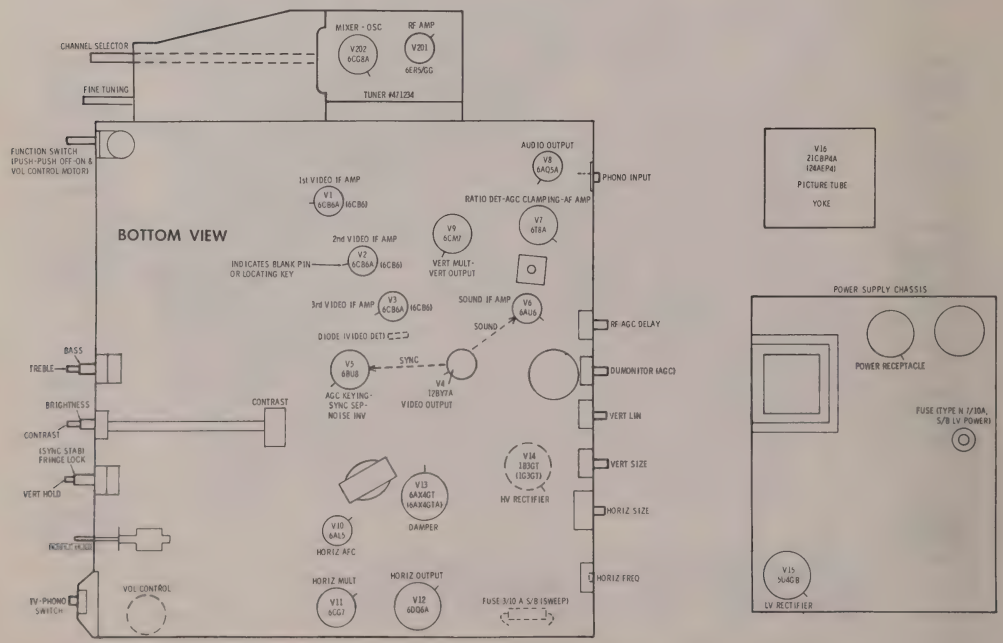
TV CHASSIS - TOP VIEW

RESISTANCE MEASUREMENTS

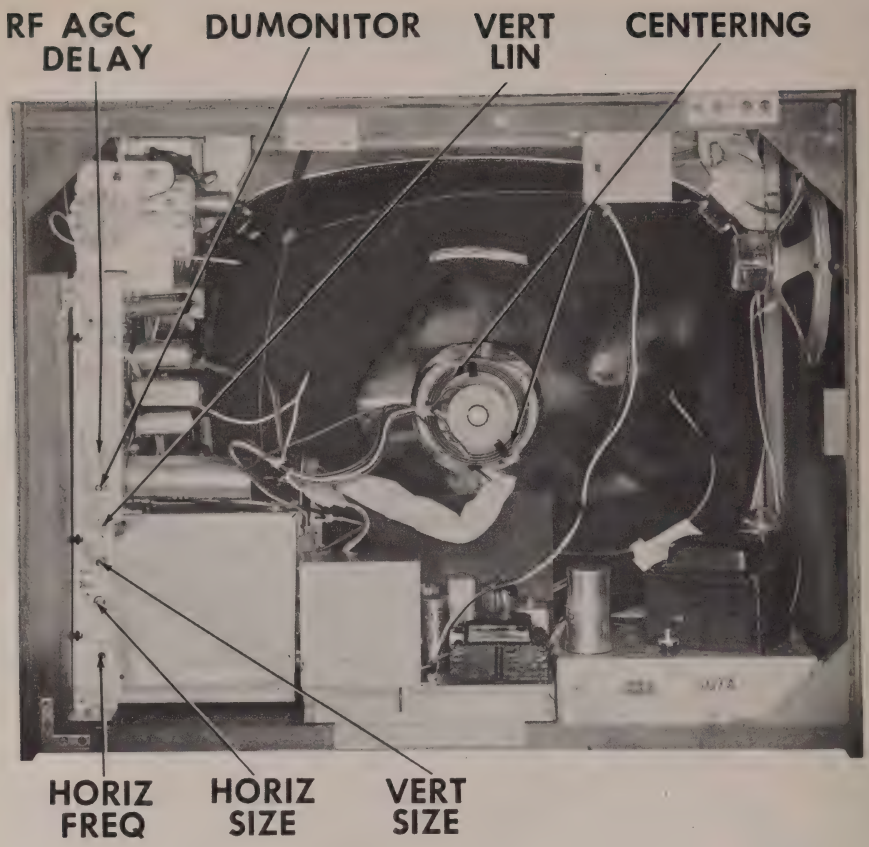
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6CB6A	4meg	47Ω	.1Ω	0Ω	▪470Ω	▪470Ω	0Ω		
V2	6CB6A	100K	100K	.1Ω	0Ω	†515Ω	†515Ω	100K		
V3	6CB6A	2200Ω	180Ω	.1Ω	0Ω	†8200Ω	†8200Ω	0Ω		
V4	12BY7A	27Ω	3300Ω	NC	.1Ω	.1Ω	0Ω	†6500Ω	†12K	0Ω
V5	6BU8	0Ω	†18K	†100K	0Ω	.1Ω	2.7meg	•2.2meg	•†3.3meg	•4meg
V6	6AU6	1.5Ω	0Ω	.1Ω	0Ω	†11K	†11K	470Ω		
V7	6T8A	INF	33K	INF	0Ω	.1Ω	4meg	0Ω	10meg	†470K
V8	6AQ5A	470K	220Ω	0Ω	.1Ω	†1900Ω	†1500Ω	NC		
V9	6CM7	†6000Ω	NC	0Ω	0Ω	.1Ω	•†5meg	•750K	2.2meg	•1800Ω
V10	6AL5	1meg	2meg	.1Ω	0Ω	1meg	0Ω	1800Ω		
V11	6CG7	†120K	•110K	1300Ω	.1Ω	0Ω	†8200Ω	3.2meg	1300Ω	0Ω
V12	6DQ6A	TP	.1Ω	TP	•†20K	•4.2meg	TP	0Ω	0Ω	TOP CAP †18Ω
V13	6AX4GT	NC	NC	¶	NC	†45Ω	NC	0Ω	.1Ω	
V14	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †430Ω
V15	5U4GB	NC	¶	NC	22Ω	NC	24Ω	NC	¶	
V16	21CBP4A	0Ω	27K	Pin 6 †100K	Pin 10 †100K	Pin 11 •350K	Pin 12 .1Ω			
V201	6ER5/GG	0Ω	6.5meg	0Ω	.1Ω	†6600Ω	0Ω	0Ω		
V202	6CG8A	4700Ω	†15K	0Ω	0Ω	.1Ω	†6600Ω	†27K	0Ω	223K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM PIN 8 OF V15.
‡ MEASURED FROM PIN 3 OF V13.
▪ MEASURED FROM PIN 7 OF V2.

NC NO CONNECTION
TP TIE POINT



TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and allow 15 minutes warm-up period. Remove the Horizontal Hold Knob on front control panel as this knob only permits approximately one revolution.

Connect a clip lead from TP1 to chassis. Adjust the Vertical Hold for MINIMUM roll.

Turn the receiver off and connect .47mfd 400 volt capacitor between point (F) and chassis.

Turn the set back on and allow it to warm up. Adjust the Horizontal Frequency Set until the picture synchronizes horizontally momentarily.

Remove the capacitor and adjust the Horizontal Hold until the picture again synchronizes horizontally momentarily.

Remove the clip lead between TP1 and chassis. Replace the Horizontal Hold Knob.

Adjust the Horizontal Size for a picture slightly wider than necessary to fill the picture mask horizontally.

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL MODEL COLONY

1. Remove 9 wood screws holding rear cover. Remove rear cover.
2. Remove 6 push-on type knobs from front of cabinet.
3. Remove remote plug, yoke plug, picture tube socket, tuner leads, high voltage lead, speaker leads, and remote switch on back of cabinet.
4. Remove 2 chassis bolts holding TV LV Supply Chassis. Remove chassis.
5. Remove 3 screws holding Remote Control Receiver.
6. Remove 2 chassis bolts holding the TV chassis to the side of the cabinet.
7. Remove TV Chassis and Remote Control Receiver.

PICTURE TUBE REMOVAL

It is necessary to remove all 3 chassis for picture tube removal (See "Chassis Removal").

PHOTOFACT® Folder

**MOTOROLA CHASSIS
TS-567, TS-567Y**

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

MOTOROLA CHASSIS
TS-567, TS-567Y

MODEL 21K153M (CH. TS-567)

MOTOROLA CHASSIS
TS-567, TS-567Y

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

PHOTOFACT® Folder

MOTOROLA CHASSIS TS-567, TS-567Y

MOTOROLA CHASSIS TS-567, TS-567Y

MODEL 21K153M (CH. TS-567)

CAUTION

ONE SIDE OF AC LINE CONNECTED TO CHASSIS.

TRADE NAME	MOTOROLA	MODELS	CHASSIS
		21T73B, M, W, 21K150B, M, W, 21K151B, M, W, 21K152CW, 21K153B, M, W, 21K154CW	TS-567
		Y21T73B, M, W, Y21K150B, M, W, Y21K151B, M, W, Y21K152CW, Y21K153B, M, W, Y21K154CW	TS-567Y
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois		
TYPE SET	Television Receiver		
TUBES	VHF - Sixteen, UHF - Seventeen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING	VHF - 150 Watts, 1.35 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

Console Models: Remove rear cover. Remove 2 screws holding mask to cabinet. Lift up and remove.

Model 21T73: Remove rear cover. Remove knobs. Remove one locking screw inside cabinet (upper right corner) and 3 screws holding bottom panel. Pull mask out at bottom from cabinet and downward.

FUSE DEVICE

A Circuit Breaker (Circuit Guard) is used for low voltage power supply protection, and may be reset by depressing reset button. (For location, see "Tube Placement Chart".)

TUNER OSCILLATOR ADJUSTMENT

To touch up the VHF Oscillator, remove Channel Selector and Fine Tuning knobs.

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube, by connecting pin 6 to pin 1 or pin 6 to pin 10.

SYNC STABILITY

Sync stability may be varied by means of a Noise Gate control. (For location, see "Tube Placement Chart".)

WIDTH

The width may be varied by a Horizontal Size Control. (For location, see "Tube Placement Chart".)

CENTERING

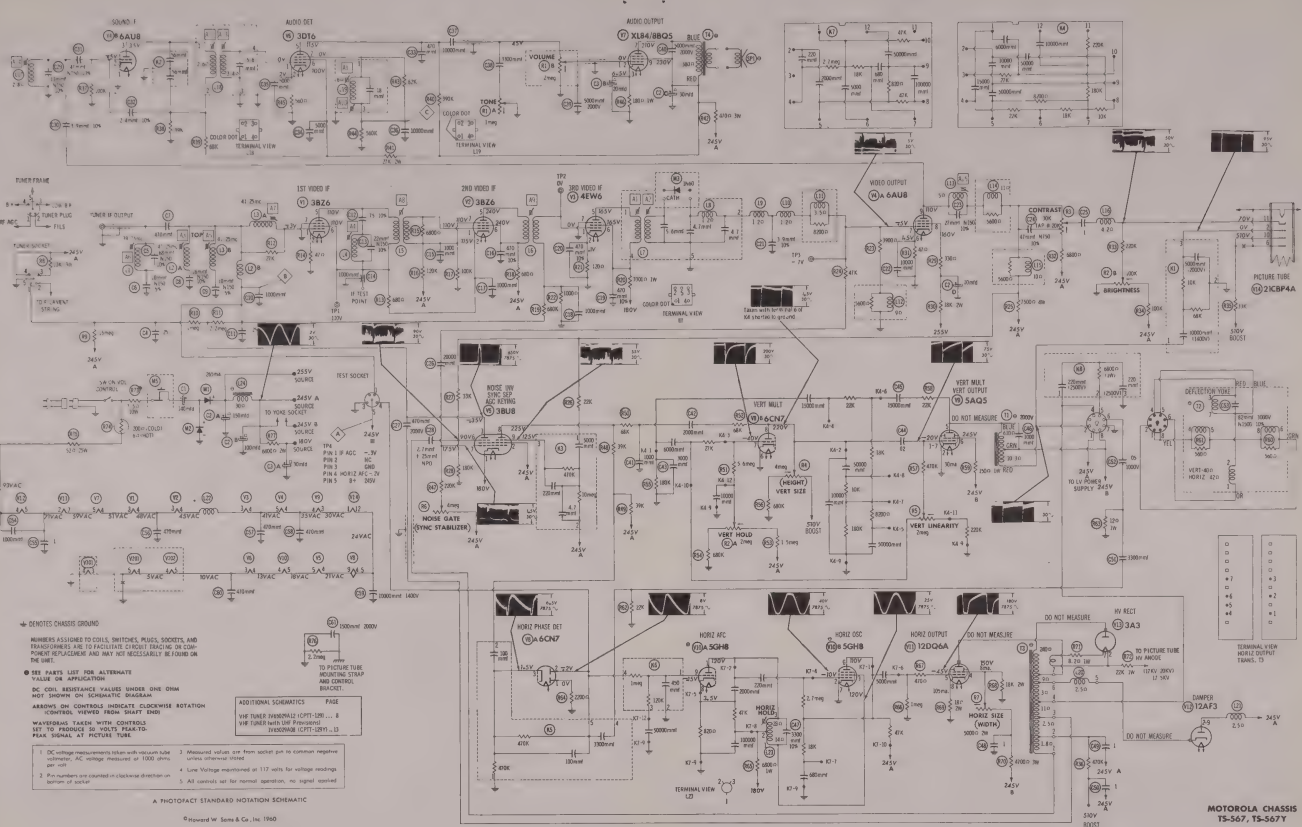
Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KA295

SET 503 FOLDER 2



DENOTES CHASSIS GROUND

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.

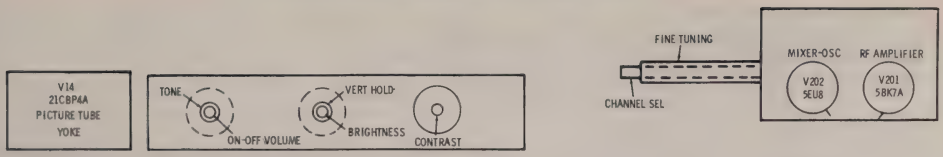
ADDITIONAL SCHEMATICS — PAGE
VHF TUNER 7H1600NA3 (CPTT-1291-...) 8
VHF TUNER with UHF Pre-tuning 7H1600NA8 (CPTT-1291-...) 13

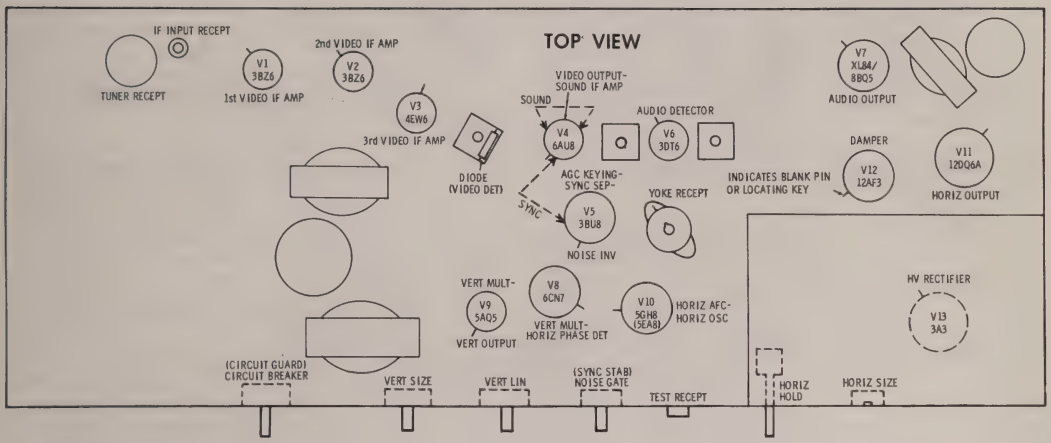
1. DC voltage measurements taken with vacuum tube voltmeter, AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, no signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1960

TUBE PLACEMENT CHART





TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

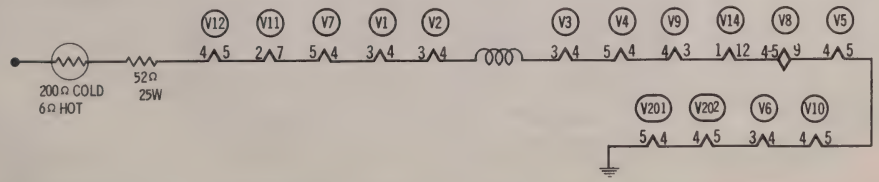
POWER SUPPLY FAILURE
No raster, no sound Circuit Breaker, Rectifiers (B+)

SWEEP FAILURE
No raster, has sound V10, V11, V12, V13, V14
No vertical deflection V8, V9
Poor vert. linearity or foldover V8, V9
Poor horiz. linearity or foldover V10, V11, V12
Narrow picture V10, V11, V12, Rectifiers (B+)
Vert. off freq. V8, V9
Horiz. off freq. V8, V10

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V14
Has pic, no sound V4, V6, V7
Overloaded picture V5

SYNC FAILURE
No vert. sync V5
No horiz. sync V5, V8
No vert. or horiz. sync V5

This receiver employs tubes used in a series filament network, an open filament in any tube will cause the set to be inoperative. (See circuit below.)



SET 503 FOLDER 2

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Remove the yoke plug to eliminate interference from the Horizontal Sweep Circuit. Connect a 1500 ohm 50 watt resistor from point Ⓐ to chassis. Disable the Tuner Oscillator by grounding the grid (Pin 2) of the Oscillator. Set the Noise Gate control fully counterclockwise. Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. The generator output lead should be terminated with its characteristic impedance, usually 50 ohms. Connect the negative lead of a 4.5 volt bias supply to point Ⓑ. Positive to chassis. Maintain between 2 and 3 volts peak to peak on scope except where otherwise noted.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	High side thru .001mfd to TP2. Low side to chassis.	44.0MC (10MC Swp.)	45.75MC	13	Vert. Amp. thru 47K to TP3. Low side to chassis. (Across Video Det. load.)	A1, A2	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
2.	High side to ungrounded tube shield floating over Mixer-Osc. Low side to chassis.	"	47.25MC	"	"	A3, A4	Increase scope gain. Remove bias if necessary. Adjust to place marker in trap notch as in Fig. 2. Tune slug at end of coil away from chassis.
3.	"	"	41.25MC	"	"	A5	Adjust to place marker in trap notch as in Fig. 2. Tune slug at end of coil nearest chassis.
4.	"	"	39.75MC	"	"	A6	Adjust to place marker in trap notch as in Fig. 2. Tune slug at end of coil away from chassis.
5.	"	"	41.25MC 42.25MC 44.0MC 45.75MC 47.25MC	"	Vert. Amp. to TP1. Low side to chassis.	Mixer Plate Coil & A7	Set generator for 3 volts peak to peak. Restore 4.5 volts bias. Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. The Mixer Plate Coil affects the center peak and A7 affects the two outside peaks. Tune slugs at end of coil away from chassis. If a suckout (trap effect) occurs, detune A8 to remove.
6.	"	"	42.25MC 45.75MC	"	Vert. Amp. thru 47K to TP3. Low side to chassis.	A8, A9	Adjust A8 to place 42.25MC marker at 50% or curve as in Fig. 4. Adjust A9 to place 45.75MC marker at 50% on other side. Tune slugs to end of coils nearest chassis. If necessary, retouch Mixer Plate Coil to correct tilt. Retouch A8 and A9 for correct response.

SOUND IF ALIGNMENT

Tune in a strong TV signal and adjust all controls for normal picture and sound. Connect the DC probe of the VTVM to point Ⓒ. Common to chassis. Adjust A10 for maximum deflection choosing the one of two peaks that produce the highest voltage. While listening to the sound, retouch A10 for maximum sound and MINIMUM distortion. The top slug (A11) is a preset slug which is set near the top of the coil form and left there.
Change to a very weak signal (this may be done by loosely coupling the antenna lead to the antenna terminals) that produces a hiss in the sound. Adjust A12 and A13 for maximum sound and MINIMUM distortion. Adjust A14 for maximum undistorted sound. If sound is not clear at this time, repeat the above procedure as necessary.

4.5MC TRAP ALIGNMENT

Tune in a strong TV signal and turn the Contrast fully clockwise. Adjust the Fine Tuning until a strong 4.5MC beat pattern is visible. Adjust A15 to find the two points at which the beat pattern is just visible on the screen. Tune the slug to the center of these two points. (Use the MINIMUM amount of inductance that will result in no apparent beat pattern.)

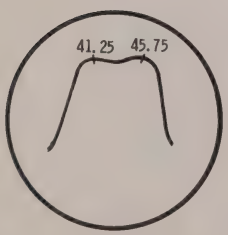


FIG.1

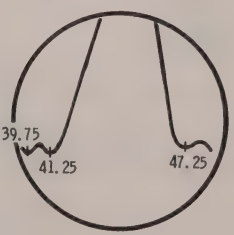


FIG.2

FIG.3

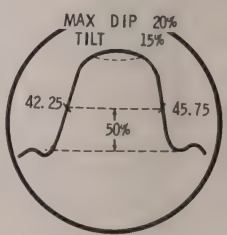
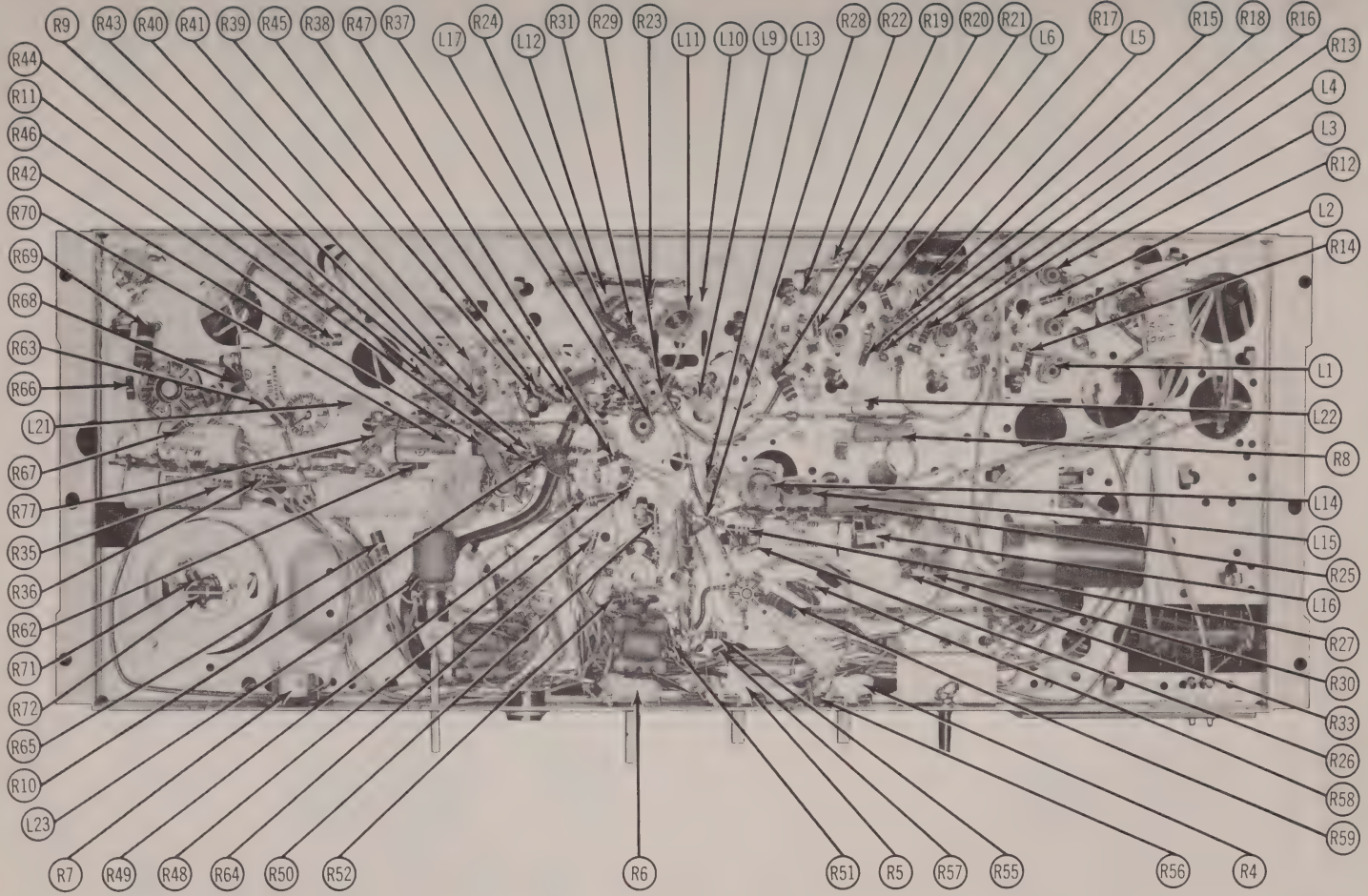


FIG.4



CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT.

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
Remove the deflection yoke plug to prevent interference radiation. Connect a 1500Ω 50 watt resistor from pin 3 to pin 5 of the Service Test Receptacle.
DO NOT remove the tuner cover.
Suggested Alignment Tools: A206, A207 ..... GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2525
A208 thru A213... GENERAL CEMENT #9296, 9297
WALSCO #2546, 2547

VHF RF AND MIXER ALIGNMENT

Connect a clip lead from point (T) to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
Preset A206 and A207 so top of screw is .35" above tuner chassis.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K to point (U). Low side to chassis.	A201, A202	Adjust for maximum gain and symmetry of response similar to Fig. 201 with markers as shown.
2.	"	"	"	"	"	"	A203, A204	Adjust for proper bandwidth as in Fig. 201.
3.	"	"	"	"	"	"	A205	Adjust for maximum amplitude and MINIMUM tilt.
4.	"	"	177MC	175.25MC 179.75MC	7	"	A206, A207	Adjust A206 for proper marker position. Adjust A207 for MINIMUM tilt.
5.	"	"	85MC	83.25MC 87.75MC	6	"	A208, A209, A210	Adjust A208 to place 83.25MC marker on or near peak, A209 to place 87.75MC marker on or near other peak and A210 for maximum gain and MINIMUM tilt.
6.	"	"	"	94MC	"	"	A211	Adjust for MINIMUM response at marker or until it just starts to affect the high frequency side of response curve. NOTE: A211 may be adjusted to trap out interference between 85 and 108MC. However, make certain that no part of a desired channel is trapped out.
7.	"	"	79MC	77.25MC 81.75MC	5	"		Check for response similar to Fig. 201. If necessary make compromise adjustment of A208, A209 and A210 for proper curve on each channel.
			69MC	67.25MC 71.75MC	4			
			63MC	61.25MC 65.75MC	3			
			57MC	55.25MC 59.75MC	2			
8.	"	"	57MC	43.5MC 45.5MC	2	"	A212, A213	Adjust A212 for MINIMUM response at 43.5MC marker and A213 for MINIMUM response at 45.5MC marker. Retouch either or both for flat response consistent with MINIMUM amplitude at trap frequencies.

VHF OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the Fine Tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	215.75MC	13	Vert. Amp. thru 47K across Video Det. load	A214	Set C210 to mid-range and leave there. Adjust to place marker in trap notch as in Fig. 202.
10.	"	"	207MC	209.75MC	12	"		Marker must fall into trap notch on each channel within plus or minus 750KC of specified marker frequency. If not, make compromise adjustment of A214 for all high band channels.
			201MC	203.75MC	11			
			195MC	197.75MC	10			
			189MC	191.75MC	9			
			183MC	185.75MC	8			
			177MC	179.75MC	7			
11.	"	"	85MC	87.75MC	6	"	A215	Adjust to place marker in trap notch as in Fig. 202.
12.	"	"	79MC	81.75MC	5	"		Marker must fall into trap notch on each channel within plus or minus 750KC of specified marker frequency. If not, make compromise adjustment of A215 for all low band channels.
			69MC	71.75MC	4			
			63MC	65.75MC	3			
			57MC	59.75MC	2			

TUNER ALIGNMENT INSTRUCTIONS (cont)

UHF IF ALIGNMENT

Remove the UHF Tuner from the side of the VHF Tuner so that UHF input receptacle of VHF Tuner is accessible. Coils are accessible thru opening in the side of tuner.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
Fig. 203	High side thru matching network to UHF input receptacle. Low side to chassis.	44MC (10MC Swp)	41.25MC 45.75MC	UHF	Vert. Amp. thru 47K to point ◇. Low side to chassis.	A216, A217	Adjust for maximum gain and symmetry of response similar to Fig. 204 with markers as shown.

FIG. 201

FIG. 202

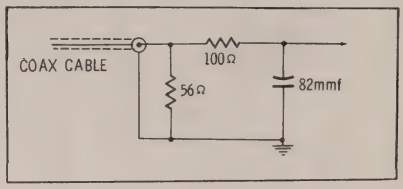
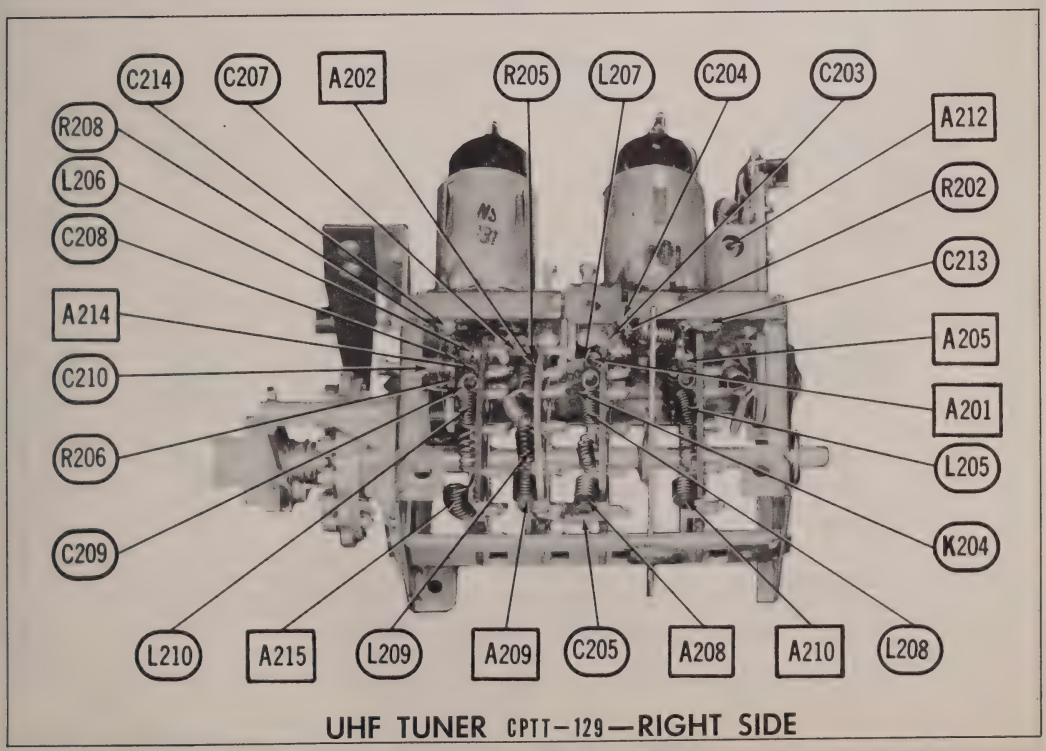
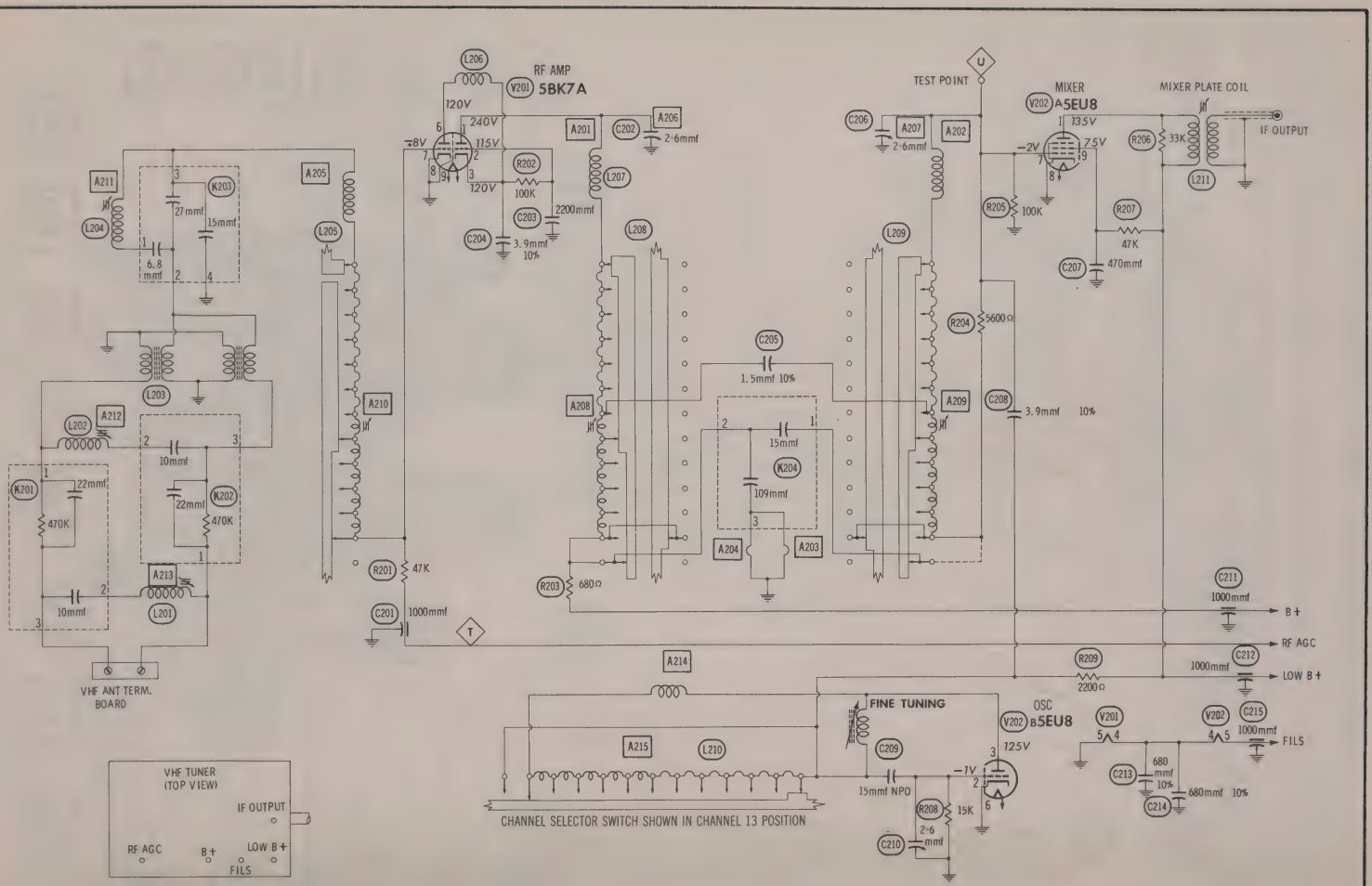


FIG. 203

FIG. 204



UHF TUNER CPTT-129—RIGHT SIDE



A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1960

VHF TUNER 1V65029A12 (CPTT-129)

TUNER PARTS LIST AND DESCRIPTIONS

CPTT–129

TUBES

• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	5BK7A	V202	Mixer-Osc.	5EU8

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	1000		EF-001	MFT-1000		CCF-102	CT280A	
C202	2-6			829-6		VC-3	CT552	
C203	2200		BPD-0022	DD-222	BYA10D22	CCD-222	B-222	5HK-D22
C204	3.9 10%				C10V4C			10TCC-V39
C205	1.5 10%		NPO-SI 1.5	TCZ-1R5	C10V15C		CNO-515	10TCC-V15
C206	2-6			829-6		VC-3	CT552	
C207	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C208	3.9 10%				C10V4C			10TCC-V39
C209	15 NPO		NPO-DI 15	DTZ-15	C10Q15C	CCTO-150	CNO-415	10TCC-Q15
C210	2-6			829-6		VC-3	CT552	
C211	1000		EF-001	MFT-1000		CCF-102	CT280A	
C212	1000		EF-001	MFT-1000		CCF-102	CT280A	
C213	680 10%		DI-680	DD-681		CCD-681	GP368	10TS-T68
C214	680 10%		DI-680	DD-681		CCD-681	GP368	10TS-T68
C215	1000		EF-001	MFT-1000		CCF-102	CT280A	

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R201	47K	
R202	100K	
R203	680Ω	

ITEM No.	RATING	REMARKS
R204	5600Ω	
R205	100K	
R206	33K	

ITEM No.	RATING	REMARKS
R207	47K	
R208	15K	
R209	2200Ω	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MOTOROLA PART No.	REPLACEMENT DATA
K201	40MC Filter	10mmf, 22mmf, 470K	51C747535	Centralab PC-360
K202	40MC Filter	10mmf, 22mmf, 470K	51C747535	Centralab PC-360
K203	Antenna Coupling	6.8mmf, 15mmf, 27mmf	51K751641	Centralab PC-365
K204	RF Coupling	15mmf, 109mmf	51K753482	

COILS (RF-IF)

ITEM No.	USE	MOTOROLA PART No.	NOTES
L201	40MC Trap Coil	24K751655	
L202	40MC Trap Coil	24K751655	
L203	Ant. Trans.	24C749398	
L204	RF Choke	24K752270	
L205	Ant. Coils	1V753490	Channels 2-13, Includes Wafer Assembly
L206	RF Choke	24B747799	

ITEM No.	USE	MOTOROLA PART No.	NOTES
L207	RF Choke	24K753481	
L208	RF Coils	1V753491	Channels 2-13, Includes Wafer Assembly
L209	Mixer Grid Coils	1V753491	"
L210	Osc. Coils	1V65071A57	"
L211	Mixer Plate Coil	24B747838	

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M201	Hi-Pass Filter	1V751864	Complete Assembly
	Shaft	1V65260A88	Fine Tuning (Includes Driver Gear)
	Shaft	1D65339A01	VHF Channel Selector (Includes Pre-Set Wheel Assembly)

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	GENERAL ELECTRIC * USE	TYPE	RAYTHEON * USE	TYPE	SYLVANIA * USE	TYPE
V1	1st Video IF Amp.	3B26	V7	Audio Output	V10	XL84/6BQ6
V2	2nd Video IF Amp.	3B26	V8	Vert. Multi - Horiz. Phase Det.	V11	6CM7
V3	3rd Video IF Amp	4EW6	V9	Vert. Mult. - Vert. Output	V12	5AQ8
V4	Video Output - Sound IF Amp	6AU8	V10	Horiz. AFC - Osc.	V13	5CM8 (SEAS) *
V5	AGC Keying - Sync Sep. - Noise Inverter	3BU8	V11	Horiz. Output	V14	12DQ6A
V6	Audio Detector	2DT6	V12	Damper	V15	12AF3
			V13	HV Rectifier	V16	6A2

* Alternate

PICTURE TUBE

ITEM No.	REPLACEMENT DATA MOTOROLA Part No.	GENERAL ELECTRIC Part No.	RCA Part No.	RAYTHEON Part No.	SYLVANIA Part No.	NOTES
V14	21CBP44	21CBP44 ①	21CBP44 ②	21CBP4/BCP44A ③	21CBP4/BCP44A ③	① Aluminized ② Silver Screen '65"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	VOLT.	REPLACEMENT DATA MOTOROLA Part No.	ARROVOX Part No.	CORNELL-DUBILIER Part No.	MALLORY Part No.	PYRAMID Part No.	SPRAGUE Part No.	NOTES
C1	140	150	23CT37520	PRS1520	BR15015	WS427	TD-150-150	TVA-1422	
C1A	150	300	23CT01006	AF24-55-94	C-20018	C-FP418-55		TVL2-4587, 3*	
B	100	300			BR30335	C-TC65			
C	30	300							
D	10	300							
C2A	30	20	23CT48732	AF81-85	B0820	FPBT.86	TMD-2365	TVL-2605	
B	20	25							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REMARKS	REPLACEMENT DATA ARROVOX Part No.	CENTRALAB Part No.	CORNELL-DUBILIER Part No.	FILMENCO Part No.	MALLORY Part No.	SPRAGUE Part No.
C4	35	100V		P368N-35		CUB2P35	1DP-3-154	QFM-3035	2TM-P35
C5	10	MISC	10% Pt. #323131238				*		10TCP-Q48
C9	10	MISC	5% Pt. #323156498				*		10TCP-Q20
C7	470						*		10TS-T47
C8	10	MISC	10% Pt. #323130578				*		10TCP-Q48
C9	10	MISC	5% Pt. #323156498				*		10TCP-Q20
C10	1000			BP8-001	DD-103	BYA10DI	CCD-103	B-B10	58K-D10
C11	35	100V	10% Pt. #323156498	P368N-35		CUB2P35		QFM-3035	2TM-P35
C12	.75	75	10% Pt. #323730523						10TCP-Q23
C13	33	MISC	10% Pt. #323130539				*		
C14	1000			EF-001	MFT-1000		CCF-103	CT280A	
C15	1000			BP8-001	DD-103	BYA10DI	CCD-103	B-B10	58K-D10
C16	470		10%	DE-470	DD-471	SR5T47	CCD-471	GP347	10TS-T47
C17	1000			BP8-001	DD-103	BYA10DI	CCD-103	B-B10	58K-D10
C18	1000			BP8-001	DD-103	BYA10DI	CCD-103	B-B10	58K-D10
C19	470		10%	DE-470	DD-471	SR5T47	CCD-471	GP347	10TS-T47
C20	470		10%	DE-470	DD-471	SR5T47	CCD-471	GP347	10TS-T47
C21	3.9	10%	Pt. #323115563			C5V4C			10TCC-V39
C22	10000			BP8-01	DD-103	BYA10DI	CCD-103	B-B10	58K-B10
C23	47	MISC	10% Pt. #323119690			C10Q47U	*		10TCP-Q37
C24	47	MISC	10%	N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C25	.1	400V		24S81-1	DP-104	CU24P1	41DP-3-104	GEM-401	41TM-P10
C26	1000			BP8-01	DD-103	BYA10DI	CCD-103	B-B10	58K-D10
C27	470	3000V		HVD-30-470	DD30-471	HVB47D47	3CCD-471	24V-347	30QA-T47
C28	3.7	VDC	± 20mmf Pt. #323135569			C5V7C			10TCC-V27
C29	10	MISC	10%	N750-DI 10	DTN-10	C10Q10	CCTN-100	CN7-410	10TCU-Q20
C30	3.9	10%	Pt. #323115563			C5V4C			10TCC-V39
C31	47	MISC	10%	N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C32	5.6	10%		NPO-SL 5.6	TCS-5R6	C5V5F12C	CCH-5R6	CM0-S56	10TCC-V56
C33	470			BP8-001	DD-471	BYA10DT47	CCD-471	B-347	10TS-T47
C34	5000			BP8-005	DD-502	BYA10D5	CCD-502	B-350	58K-D50
C35	5000			BP8-005	DD-502	BYA10D5	CCD-502	B-350	58K-D50
C36	10000			BP8-01	DD-103	BYA10DI	CCD-103	B-110	58K-B10
C37	10000			BP8-01	DD-103	BYA10DI	CCD-103	B-110	58K-B10
C38	3300			BP8-0033	DD-332	BYA10D33	CCD-332	B-333	58K-D33
C39	3000	3000V			DD30-502	HVC30D5	3CCD-502	24V-347	30KSB-D5
C40	5000	3000V			DD30-502	HVC30D5	3CCD-502	24V-347	30KSB-D5
C41	5000			BP8-001	DD-502	BYA10DI	CCD-502	B-310	58K-D50
C42	2000			BP8-002	DD-202	BYA10D2	CCD-202	B-320	58K-D20
C43	3300			BP8-003	DD-332	BYA10D3	CCD-332	B-333	58K-D33
C44	.03	600V		P688N-02	DD-303	CU5S23	6DP-3-303	GEM-612	61TM-S20
C45	5000			BP8-005	DD-502	BYA10D5	CCD-502	B-350	58K-D50
C46	1000	3000V		HVD-30-1000	DD30-102	HVB30D1	3CCD-102	24V-313	30HKB-D1
C47	3300		10%	1464-0033		HSD33	3CCD-332-332K	MC2433	MB-233
C48	.1	400V		P488N-1	DP-104	CU24P1	4DP-3-104	GEM-401	41TM-P10
C49	.1	400V		P488N-1	DP-104	CU24P1	4DP-3-104	GEM-401	41TM-P10
C50	.1	600V		P688N-1	DP-104	CU5P1	6DP-4-104	GEM-601	61TM-P10
C51	3300	600V		P688N-0033	DD-332	BYA10D33	6CCD-332	B-333	58K-D33
C52	.05	1000V		P1065N-05		CU5S5S	10DP-5-503	GEM-1015	10TM-S50
C53	82	3000V	±5% Pt. #323129505						
C54	5000			BP8-001	DD-502	BYA10DI	CCD-102	B-310	58K-D50
C55	.1	400V		P488N-1	DP-104	CU24P1	4DP-3-104	GEM-401	41TM-P10
C56	470			BP8-0047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C57	470			BP8-0047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C58	470			BP8-0047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C59	10000	1600V		DAC-37	DDS5-103	HVE16S	16DP-3-103	UAC-139	BL-S50
C60	470			BP8-0047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C61	1500	3000V		HVD-30-1500	DD30-152	HVB30D15	3CCD-152	24V-315	30QA-D5

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R8	10K 3W	Pt. #17K744684 IRC #PW5-10K
R9	15meg	
R10	1meg	
R11	2.5meg	
R13	3.7K	
R23	680Ω	
R24	47Ω	
R25	6800Ω	
R26	130K	
R17	100K	
R18	680Ω	
R19	680K	
R20	13000 1W	
R21	180Ω	
R22	1000Ω	
R33	3900Ω	
R34	47K	
R28	75000 4W	Pt. #17K748494 IRC #PW5-75000
R36	22K	
R37	33K	
R38	180K	
R39	3300	
R40	18K 2W	
R41	47Ω	

ITEM No.	RATING	REMARKS
R33	6800Ω	
R33	220K	
R34	100K	
R35	33K	
R36	470K	
R37	100K	
R38	39K	
R39	68K	
R40	390K	
R41	27K 2W	
R42	470Ω 3W	Pt. #17K753483 IRC #PW5-470Ω
R43	82K	
R44	560K	
R45	560Ω	
R46	180Ω 1W	
R47	220K	
R48	39K	
R49	39K	
R50	68K	
R51	5.6meg	
R52	68K	
R53	1.5meg	
R54	680K	
R55	180K	
R56	680K	

ITEM No.	RATING	REMARKS
R57	470K	
R58	33K	
R59	150Ω 1W	
R60	560Ω	
R61	560Ω	
R62	22K	
R63	120 1W	
R64	2200Ω	
R65	6800Ω 1W	
R66	47K	
R67	470Ω	
R68	18K 2W	
R69	180 2W	
R70	47000 3W	Pt. #17K751479 IRC #PW5-47000
R71	5.1Ω 1W	
R72	22K 1W	
R73	7.5Ω 10W	Pt. #17K744240 IRC #PW10-7.5Ω
R74	300Ω (Cold) 8Ω (Hot)	Pt. #19K745613
R75	5Ω 25W	Pt. #17K751541
R76	3.5meg	
R77	6800Ω 2W	

CONTROLS

ITEM No.	RATING RESISTANCE	WATTS	REPLACEMENT DATA MOTOROLA Part No.	CENTRALAB Part No.	CLAROSTAT Part No.	CTS-IRC Part No.	MALLORY Part No.	INSTALLATION NOTES
R1A	1meg		18D65503A01	PT-53				Tone
R1B	2meg			R2-58	RTV-715		★ UF4148-8	Volume
C	Switch			SW-1				Power Off-On
R2A	2meg		18D65503A02	T1-67	RTV-714		★ UF4149	Vert. Hold
B	100K			R3-31				Brightness
R3	50K		18D65503A01				UT-418	Contrast
	20K Tap							
R4	4meg		18K743534	TT-86	B47-5meg-8	HLC4	PTA56L	Vert. Size (Height)
R5A	2meg		18K743523	TT-75	B47-2meg-8	B11-139	PTA28L	Vert. Linearity
B	Shaft			Not Req.	Not Req.	T166	Not Req.	
R6A	4meg		18K740694	TT-86	B47-5meg-8	B11-340	PTA56L	Noise Gate (Sync Sep.)
B	Shaft			Not Req.	Not Req.	T164	Not Req.	
R7A	5000Ω	2(WW)	17BT646869	WH-502	A43-5000	WP9-5000	PTA-5K	Horiz. Size (Width)
B	Shaft			Not Req.	FES-1/4	Not Req.	Not Req.	

■ "IRC-Equivalent: Equivalent: RA18A, RU26A, OR362, HS562, US61.
▲ "IRC-Equivalent: Equivalent: FA38L, RU61L, OR362, HS562.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA MOTOROLA Part No.	Merit Part No.	Miller Part No.	Ram Part No.	NOTES
L1	39.75MC Trap	24KT56048	TV-153	6125 ▲		▲ Disregard Tap
L2A	45.25MC Trap	24KT56050				
B	Trap Coil	24KT56084				
L3A	41.9MC Trap	24KT56084				▲ Disregard Tap
B	1st Video IF					
L4	1st Video IF	24KT47585	TV-153 ▲	6125 ▲		
L5	2nd Video IF	1Y747587	TV-130	6249	VP-3	
L6	3rd Video IF	24KT57046	TV-130	6249	VP-3	
L7	4th Video IF	24KT57722				
L8	Resonator Choke	24R116693				8.5uh
L9	RF Choke	24KT46779 ①	BC-562	9215-18		1.8uh
L10	Resonate Choke	24R116693				8.5uh
L11	Series Peaking Coil	24KT54220 ②	TV-194	6115	VP-3	360uh
L12	Shunt Peaking Coil	24KT54397 ②	TV-201	6134	VP-7	390uh
L13	4.5MC Trap	24KT56014	TV-151	1470	EF-3	
L14	Series Peaking Coil	24KT49670 ②	TV-185	6116	VP-6	240uh
L15	Shunt Peaking Coil	24KT54196 ②	TV-188	6174	VP-5	560uh
L16	Series Peaking Coil	24KT50835	TV-194	6112	VP-3	100uh
L17	1st Sound IF	24KT51354	TV-151	1470	EF-3	
L18	2nd Sound IF	24DT51331	TV-113	6303	EF-3	
L19	Quadrature Coil	24KT51492	TV-154	1470-A	EF-3	
L20	RF Choke	24KT47171	BC-561	4611		7.5uh
L21	RF Choke	24KT47171	BC-561	4611		7.5uh
L23	Fil. Choke	24KT30391	BC-562	4604	VP-9	1.5uh

① IRC Pt. # CLA
② Includes Isolating Resistor.
③ Includes 56000 Resistor.

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA MOTOROLA Part No.	Merit Part No.	Miller Part No.	Ram Part No.	Rogers Part No.	Stancor Part No.	Thordarson Part No.	Triad Part No.
L22	Horiz. Osc. (Horiz. Hold)	24CT56779	TV-159	6311	-		RTC-8613	HS-7	

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	DC. RES.	INDUCTANCE @ CURRENT (000 ~)	REPLACEMENT DATA MOTOROLA Part No.	Merit Part No.	Ram Part No.	Stancor Part No.	Thordarson Part No.	Triad Part No.	NOTES
L24	.380A	30Ω	88 Hy.	25K751752-BA①	C-3996	F-901	C-3326	26C93	C-37X	

① Alternate Pt. #25K751752.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA MOTOROLA Part No.	Merit Part No.	Ram Part No.	Rogers Part No.	Stancor Part No.	Thordarson Part No.	Triad Part No.
T1	Vert. Output	25K744974-W	A-3855	V-316 ①	VO-38	VO-108	26S73 ③	A-133X
	Alt. Output	25K744974						
T2	Yoke Horiz. (24.5MHz) 90° Vert. (29MHz)	24K747492-W	MDF-97 ③④	MO-8		DY-32A	Y-45 ③④⑤	Y-45-2
	Alt. Yoke	24K747492						
	Rear Cover and Centering Device	59CT32145						YC-1
	Yoke Clamp	42A72675						CL-1
T3	Horiz. Output	24K745397-W ⑤						D-173 *
	Alt. Horiz. Output	24K745397 ⑤						
	Primary Coil	28T745898						
	Secondary Coil	24K745108						D-176

① Cut and tape green lead.
② Drill new mounting hole(s).
③ Use original leads, plug, rear cover and centering device, connect same as original.
④ Remove Jumper from Terminals #5 & #6.
⑤ Remove Horiz. Damping Capacitor from across Yoke Terminals #8 & #2; install across Yoke Terminals #3 & #7.
⑥ Complete Transformer Assembly.

HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

ORIGINAL TERMINAL CONNECTIONS	Merit Replacement Connections	Ram Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
7						7
6						6
5						5
4						4
3						3
2						2
1						1

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	SEC.	REPLACEMENT DATA MOTOROLA Part No.	Merit Part No.	Ram Part No.	Stancor Part No.	Thordarson Part No.	Triad Part No.	NOTES
T4	4700Ω	6-8Ω	25K749665-WC①	A-3902	AU-601	A-3537	23S98	S-63X	① Alternate Pt. #25K749665.

SPEAKER

ITEM No.	TYPE SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA MOTOROLA Part No.	Merit Part No.	NOTES
SP1	8" x 8"	PM	8-8Ω	50D65055A04*	69A325	* Used in Models X1853SB, M, W, Y1X153B, M, W,
	5 1/4"	PM	6-8Ω	50D65295A01 ①		X1X154CW, Y1X154CW
	5½" x 7½"	PM	6-8Ω	50DT51V2 +		① Used in Models X1773B, M, W, Y1X173B, M, W
						+ Used in Models X1X215B, M, W, Y1X215B, M, W
						X1X151B, M, W, Y1X151B, M, W, X1X15CW, Y1X15CW

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MOTOROLA Part No.	REPLACEMENT DATA
K1	Vert. Blanking	3000mmf (3000V); 100mmf, 1400V); 10K, 68K 56mmf, 36mmf	51D747562	
K2	Sound IF Plate	4.7mmf, 220mmf, 5000mmf,	51D751309	Centralab PC-352
K3	Spur Sup. Screen	470K, 10meg	51D653254A01	
K4	Vert. Sweep	6000mmf, 10000mmf, 10000mmf, 15000mmf, 50000mmf, 50000mmf 82000, 10K, 18K, 22K, 27K, 180K, 280K	51K753674	
K5	AFC Comp.	100mmf, 100mmf, 330mmf, 470K, 470K	51D653239A01	
K6	AFC Filter	470mmf, 10K, 1meg	51D653239A03	
K7	Horiz. Osc.	220mmf, 680mmf, 5000mmf, 5000mmf, 50000mmf, 100000mmf 3.3K, 15K, 47K, 2.7meg, 47K	51K754297	
K8	Horiz. Deflection Comp.	220mmf (3000V), 220mmf (1500V) 6800Ω (watt)	51K752327	

PARTS LIST AND DESCRIPTIONS (Continued)

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					
	CURRENT (Measured)	MOTOROLA PART No.	ITT PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.265A	48K122479 *	1241AH *	1N1764 ♦	350A *	SR500 ♦	* Selenium Type
M2	.265A	48K122479 *	1241AH *	1N1764 ♦	350A *	SR500 ♦	♦ Silicon Type

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		MOTOROLA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M3	1N60	48K747548	1N60	1N60	Video Detector (Clip-In)

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M4	Tuner	1V65029A12	CPTT-129, VHF, Note 1 STANDARD COIL REPLACEMENT Part #GGS-4221A
	Tuner	1V65029A08	CPTT-129Y, VHF with UHF Provisions, Note 2
	Tuner		TT-600, UHF, Note 2
M5	Circuit Breaker	80C750604	(Circuit Guard)

Note 1. Used in Chassis TS-567. Note 2. Used in Chassis TS-567Y.

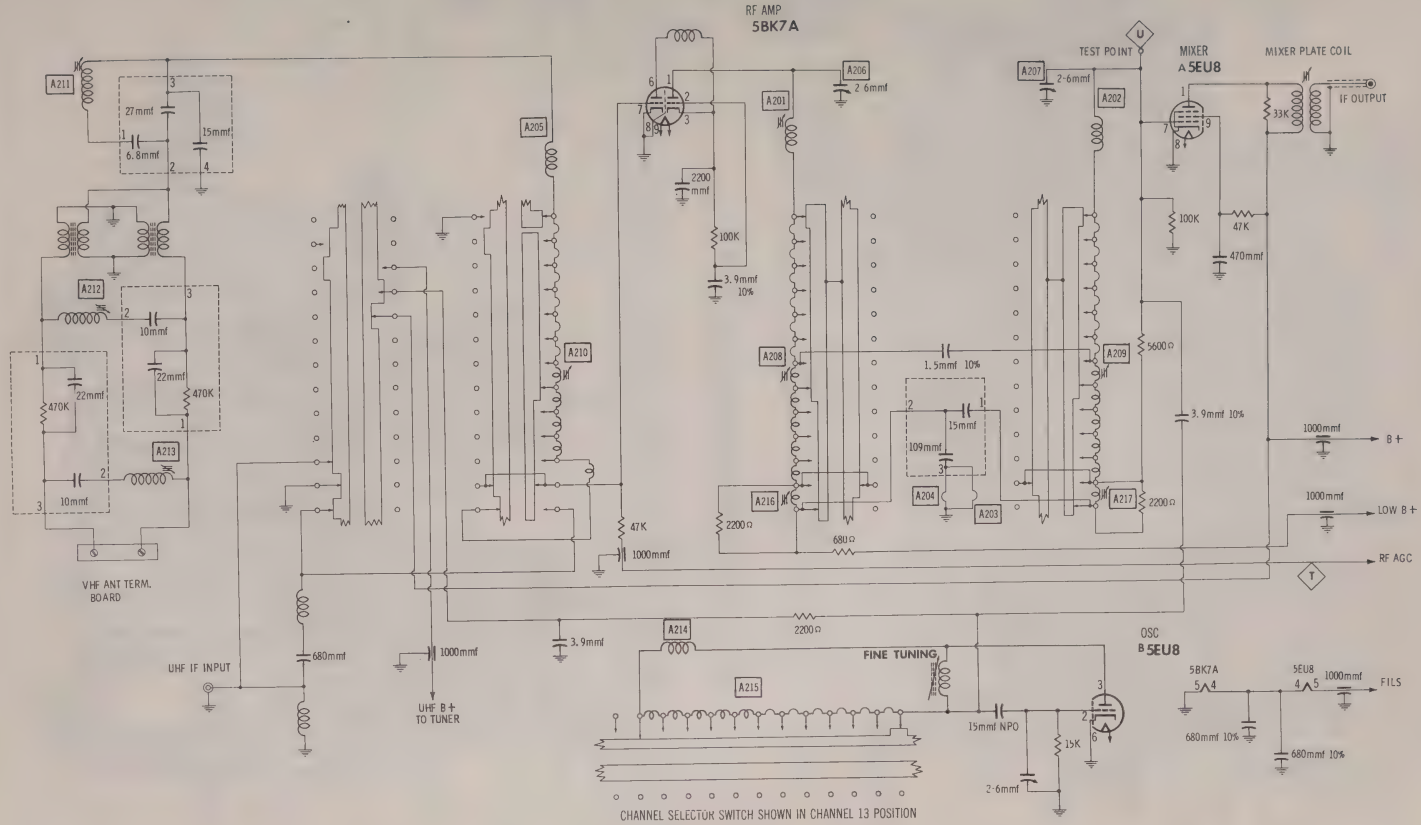
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	61C65068A01	Tinted
Mask	13E65047A01	
Knob	36C65214A01	VHF Channel Selector
Knob	36D65250A01	UHF Channel Selector, Models Y21K150B, Y21K151B, Y21K153B, Y21T73B
Knob	36D65250A03	UHF Channel Selector, Models Y21K150M, Y21K150W, Y21K151M, Y21K151W, Y21K152CW, Y21K153M, Y21K153W, 21K154CW, Y21K154CW, Y21T73M, Y21T73W
Knob	34C65249A01	UHF Channel Indicator
Knob	36B65213A01	Fine Tuning
Knob	36B65235A01	Off-On & Volume, Brightness
Knob	36B65236A01	Vert. Hold, Tone
Knob	36C65237A01	Contrast
Cabinet	16E65201A03	Console, Masonite, Blond, Models 21K150B, Y21K150B
Cabinet	16E65201A01	Console, Masonite, Mahogany, Models 21K150M, Y21K150M
Cabinet	16E65201A02	Console, Masonite, Walnut, Models 21K150W, Y21K150W
Cabinet	16E65212A03	Console, Masonite, Blond, Models 21K151B, Y21K151B
Cabinet	16E65212A01	Console, Masonite, Mahogany, Models 21K151M, Y21K151M
Cabinet	16E65212A02	Console, Masonite, Walnut, Models 21K151W, Y21K151W
Cabinet	16E65095A01	Console, Masonite, Cherrywood, Models 21K152CW, Y21K152CW
Cabinet	16E65093A03	Console, Masonite, Blond Oak, Models 21K153B, Y21K153B
Cabinet	16E65093A01	Console, Masonite, Mahogany, Models 21K153M, Y21K153M
Cabinet	16E65093A02	Console, Masonite, Walnut, Models 21K153W, Y21K153W
Cabinet	16E65096A01	Console, Masonite, Cherrywood, Models 21K154CW, Y21K154CW
Leg	16E65201A05	Front, Walnut, Models 21K150W, Y21K150W
Leg	16E65201A08	Rear, Walnut, Models 21K150W, Y21K150W
Leg	16E65201A06	Front, Blond, Models 21K150B, Y21K150B
Leg	16E65201A09	Rear, Blond, Models 21K150B, Y21K150B
Leg	16E65201A04	Front, Mahogany, Models 21K150M, Y21K150M
Leg	16E65201A07	Rear, Mahogany, Models 21K150M, Y21K150M
Leg	16E65212A15	Blond, Models 21K151B, Y21K151B
Leg	16E65212A13	Mahogany, Models 21K151M, Y21K151M
Leg	16E65212A14	Walnut, Models 21K151W, Y21K151W
Leg	16E65095A02	Cherrywood, Models 21K152CW, Y21K152CW
Leg	16E65093A06	Blond Oak, Models 21K153B, Y21K153B
Leg	16E65093A04	Mahogany, Models 21K153M, Y21K153M
Leg	16E65093A05	Walnut, Models 21K153W, Y21K153W
Leg	16E65096A02	Below Shelf, Models 21K154CW, Y21K154CW

WIRING DATA

High Voltage Lead	Use BELDEN No.	8869
Shielded Hook-up Wire	Use BELDEN No.	8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No.	8874
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8230 or 8275
Antenna Rotor Cable	Use BELDEN No.	8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

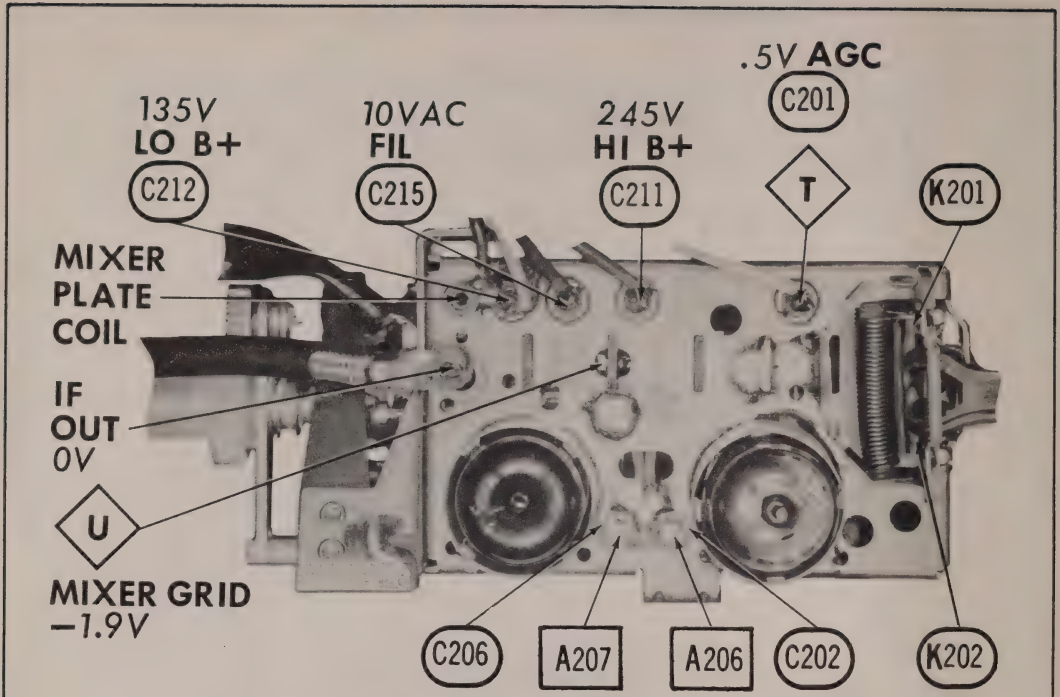


A PHOTOFACT STANDARD NOTATION SCHEMATIC

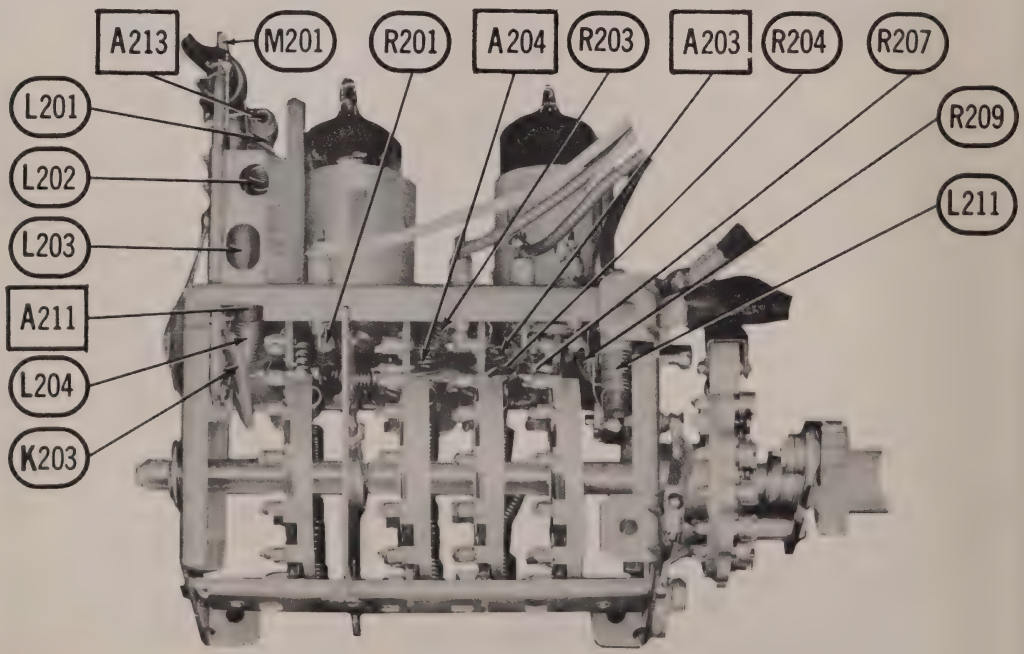
© Howard W. Sams & Co., Inc. 1960

VHF TUNER with UHF Provisions - 1V65029A08 (CPTT-129Y)

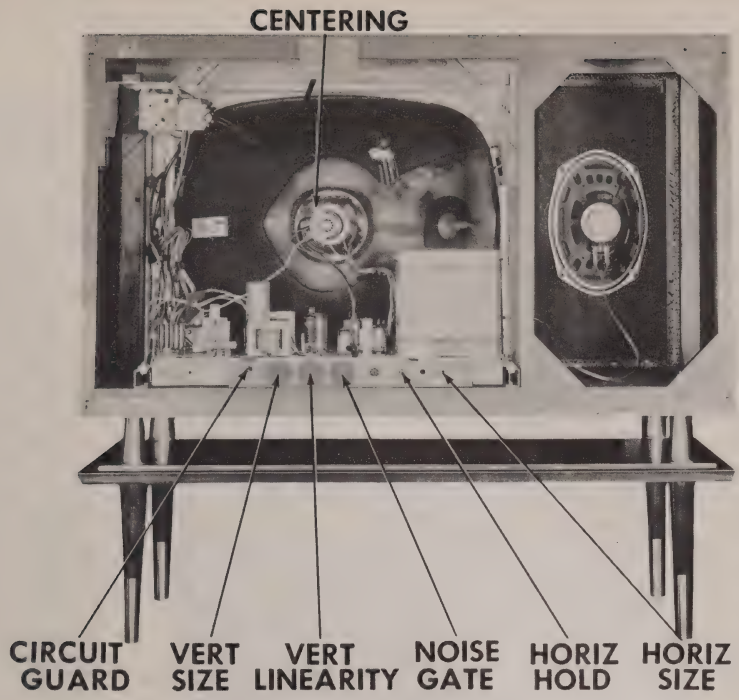
MOTOROLA CHASSIS
TS-567, TS-567Y



VHF TUNER CPTT-129 - TOP VIEW



VHF TUNER CPTT-129 - LEFT SIDE



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

Set the Brightness and Contrast Controls for a normal picture.

Turn the Horizontal Hold (Horiz. Osc. Coil Slug) clockwise until the picture loses sync. It may be necessary to switch off channel and back again for picture to lose sync.

Turn the Horizontal Hold slowly counterclockwise until the picture just falls into sync.

Adjust Horizontal Size Control for a picture slightly wider than necessary to fill picture mask horizontally.

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL (CONSOLE MODELS)

Note: Chassis and picture tube may be removed as a unit (on mounting board) or chassis may be removed separately.

To remove mounting board assembly (with chassis and picture tube):

1. Remove 8 wood screws holding rear cover. Remove rear cover.
2. Remove 7 push-on type knobs in front.
3. Remove 2 screws holding control panel.
4. Remove speaker leads.
5. Remove 4 screws holding tuner mounting bracket or remove leads to tuner.
6. Remove 4 bolts holding mounting board.
7. Remove mounting board (with picture tube and chassis).

To Remove Chassis:

1. Remove rear cover.
2. Remove picture tube socket, yoke plug, and hi voltage lead.
3. Remove 4 screws holding tuner mounting bracket or remove leads to tuner.
4. Remove 4 chassis screws.
5. Remove chassis.

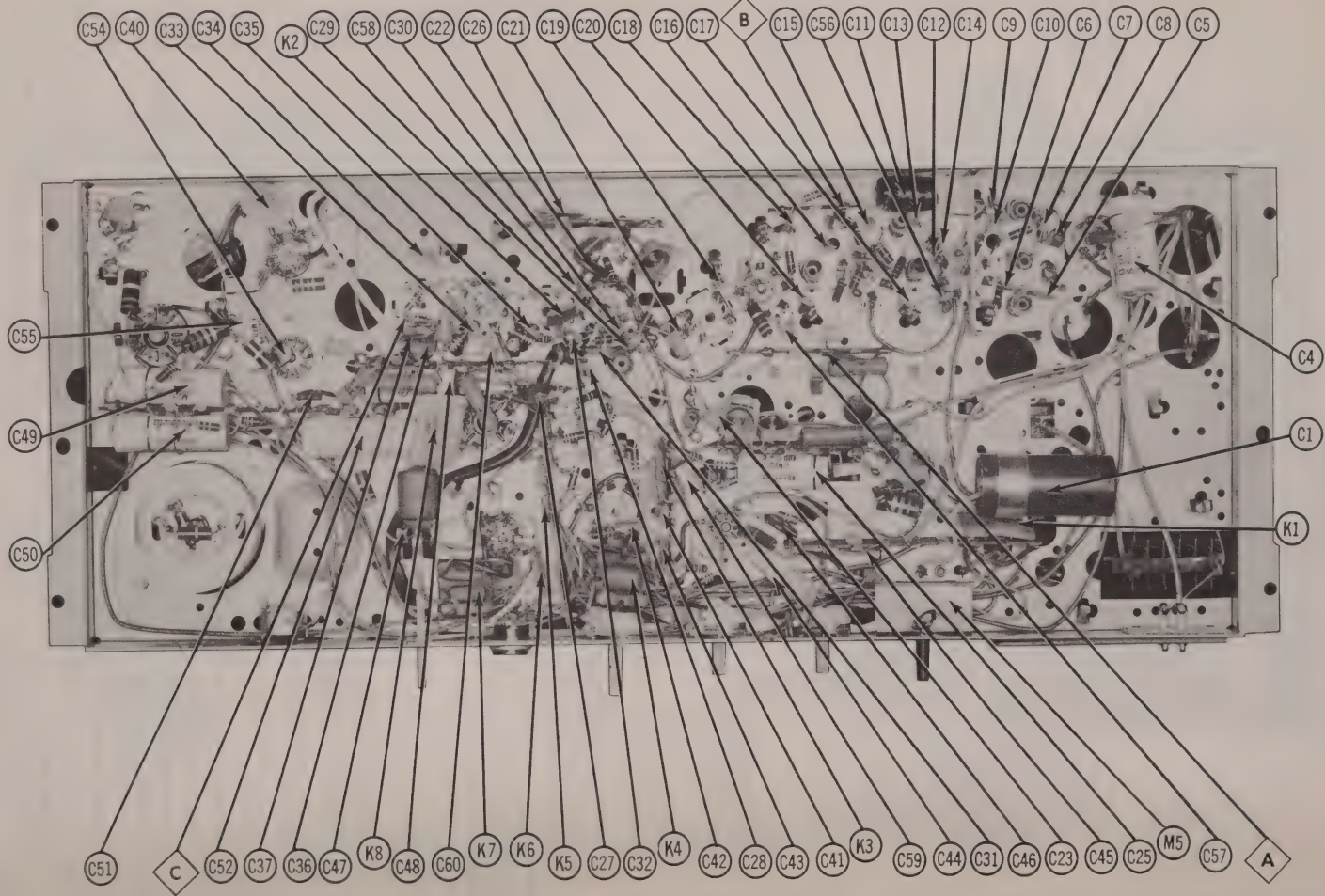
PICTURE TUBE REMOVAL

It is necessary to remove mounting board assembly for picture tube removal. (See "Mounting Board Assembly Removal".)

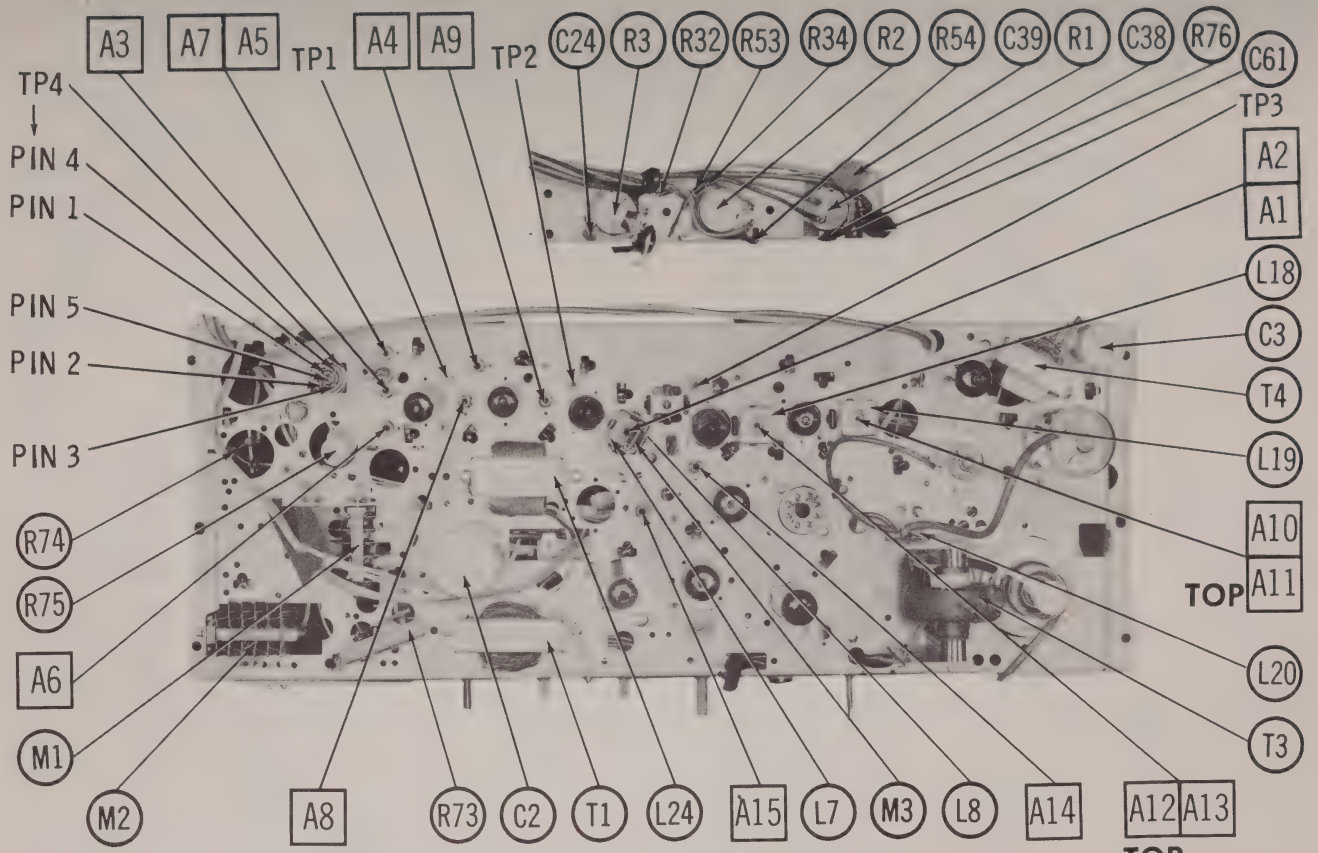
CABINET REMOVAL MODEL 21T73

Note: To service chassis in cabinet, remove 9 screws holding bottom panel.

1. Remove rear cover.
2. Remove tuner mounting bracket.
3. Remove speaker leads and tuning knob (on VHF-UHF models).
4. Remove 6 screws (3 on each side) at bottom of cabinet and one on each side (at bottom front).
5. Lift cabinet from chassis assembly.



CHASSIS BOTTOM VIEW - CAPACITOR & MISC. IDENT.



TP1: 110V 1st VIDEO IF SCREEN GRID

TP2: 0V 3rd VIDEO IF GRID

TP3: -.7V VIDEO OUTPUT GRID

TP4: PIN 1 -.3V IF AGC
PIN 2 NC
PIN 3 GND
PIN 4 -.2V HORIZ AFC
PIN 5 245V B+

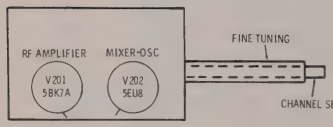
CHASSIS - TOP VIEW

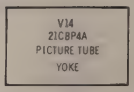
MOTOROLA CHASSIS
TS-567, TS-567Y

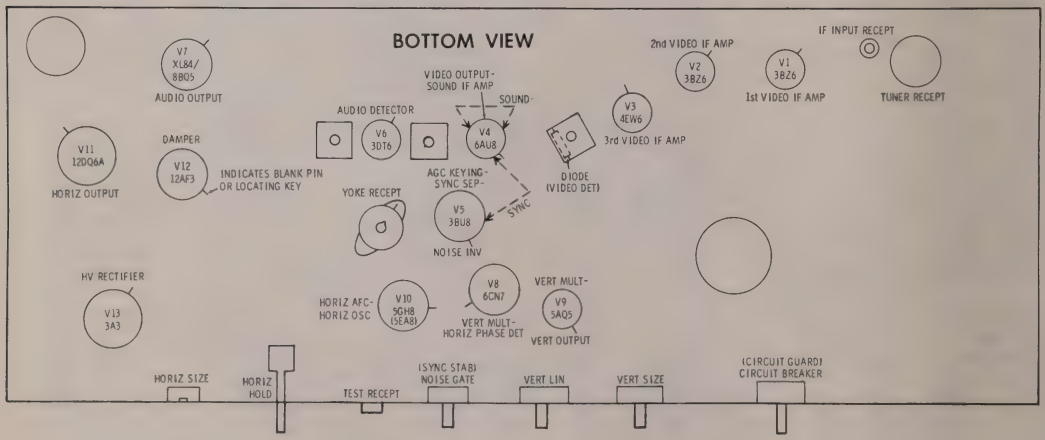
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9	
V1	3BZ6	680K	47Ω	95Ω	90Ω	■ 680Ω	■ 680Ω	0Ω			
V2	3BZ6	† 60K	INF	90Ω	85Ω	† 710Ω	† 710Ω	† 60K			
V3	4EW6	1000Ω	120Ω	85Ω	75Ω	† 10K	† 10K	0Ω			
V4	6AU8	0Ω	100K	† 35K	65Ω	75Ω	47Ω	3900Ω	† 18K	† 7000Ω	
V5	3BU8	† 6800Ω	† 30Ω	2.9meg	40Ω	35Ω	† 35K	● † 2meg	† 80K	† 10meg	
V6	3DT6	3.4Ω	560Ω	20Ω	25Ω	† 390K	† 27K	560Ω			
V7	XL84/ 8BQ5	0Ω	0Ω	180Ω	95Ω	110Ω	NC	† 880Ω	NC	† 510Ω	
V8	6CN7	2200Ω	940K	470K	45Ω	45Ω	0Ω	● 1.8meg	● † 2meg	40Ω	
V9	5AQ5	● 1.5meg	0Ω	55Ω	65Ω	† 640Ω	† 180Ω	● 1.5meg			
V10	5GH8	† 12K	† 2.7meg	† 12K	25Ω	35Ω	† 47K	0Ω	820Ω	2meg	
V11	12DQ6A	NC	130Ω	NC	● † 5000Ω	1meg	NC	110Ω	18Ω	TOP CAP ‡ 11Ω	
V12	12AF3	NC	NC	NC	155Ω	130Ω	NC	NC	NC	† 30Ω	TOP CAP ¶
V13	3A3	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ‡ 250Ω	
V14	21CBP4A	55Ω	80K	Pin 6 ‡ 510K	Pin 10 ‡ 510K	Pin 11 ● 280K	Pin 12 45Ω				
V201	5BK7A	† 710Ω	▲ 100K	▲ 0Ω	10Ω	0Ω	INF	3.7meg	0Ω	0Ω	
V202	5EU8	† 10K	15K	† 12K	10Ω	20Ω	0Ω	100K	0Ω	† 57K	
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM OUTPUT OF M1.
‡ MEASURED FROM CAP OF V12.
NC NO CONNECTION
■ MEASURED FROM PIN 2 OF V2.
▲ MEASURED FROM PIN 6 OF V201.







TUBE PLACEMENT CHART

PHOTOFACT® Folder

**AMERICAN MOTORS
MODEL 8990811**

AMERICAN MOTORS
MODEL 8990811

TRADE NAME	American Motors Model 8990811 (For 1960 Rambler American Automobiles)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	Battery Operated 3 Tube, 2 Transistor Custom Built Automobile AM Receiver
POWER SUPPLY	12 Volt Storage Battery RATING .8 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540 — 1610KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1 thru A4.....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A5, A6.....GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A8, A9, A10.....GENERAL CEMENT #9050-L, 9150
WALSCO #2521, 2524

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to antenna receptacle. Low side to chassis.	262.5KC (400∿ Mod.)	High freq. end stop.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Thru dummy (Fig. 1) to antenna receptacle.	1610KC	"	"	A5, A6, A7	"
	Step 3 is not necessary unless tuner has been tampered with or associated components have been replaced. If necessary, back cores (A8, A9 and A10) out of coils but not out of coil forms. Repeat Step 2.					
3.	Thru dummy (Fig. 1) to antenna receptacle.	1200KC	Tuner carriage 9/16" from high end stop.	"	A8, A9, A10	Adjust for maximum output. Repeat Step 2.
4.	With radio installed in car and antenna fully extended, tune in a weak station near 1200KC and adjust A7 for maximum output.					

PUSHBUTTON ADJUSTMENT

1. Pull pushbutton out.
2. Tune manually to desired station.
3. Press button in firmly.
4. Repeat for remaining buttons.

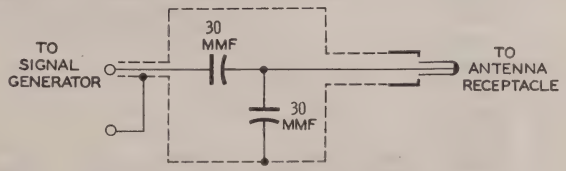


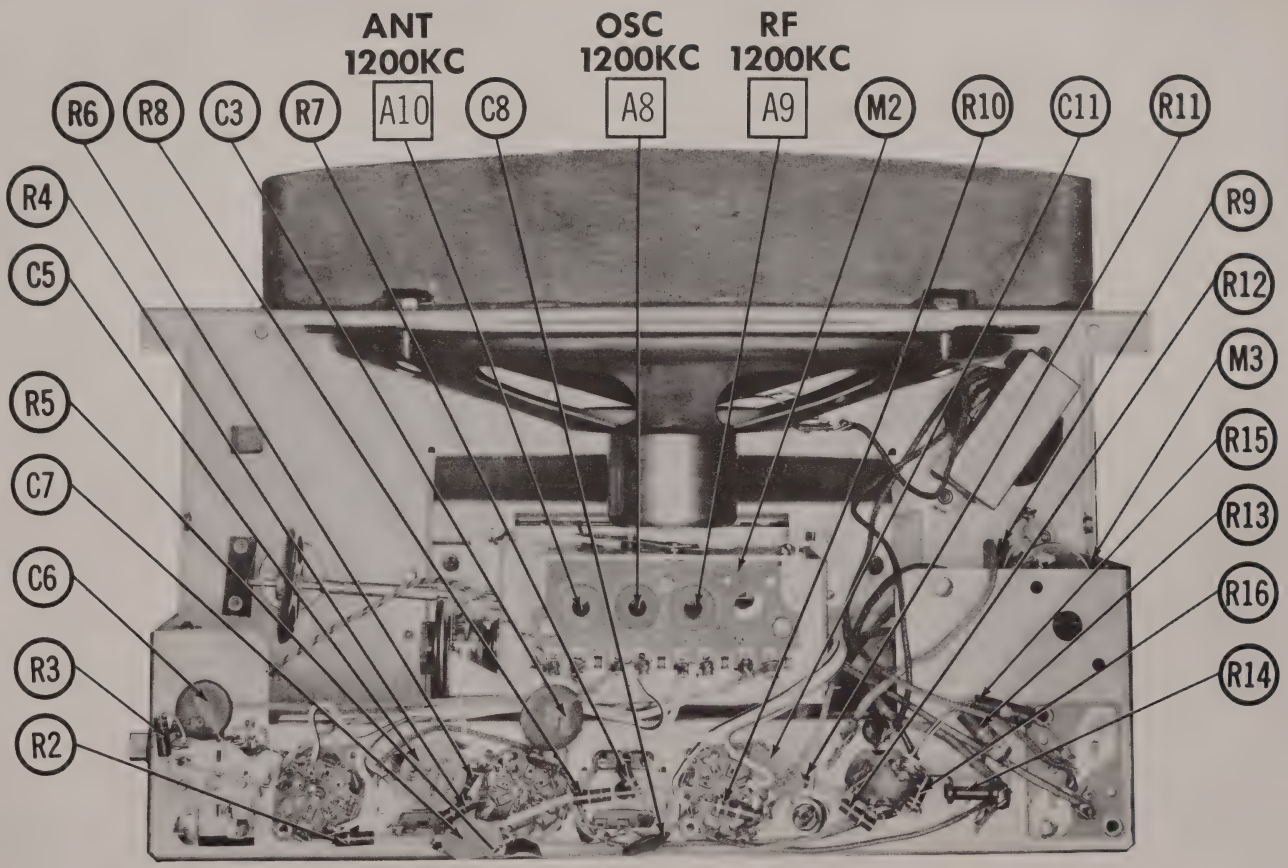
FIG. 1

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

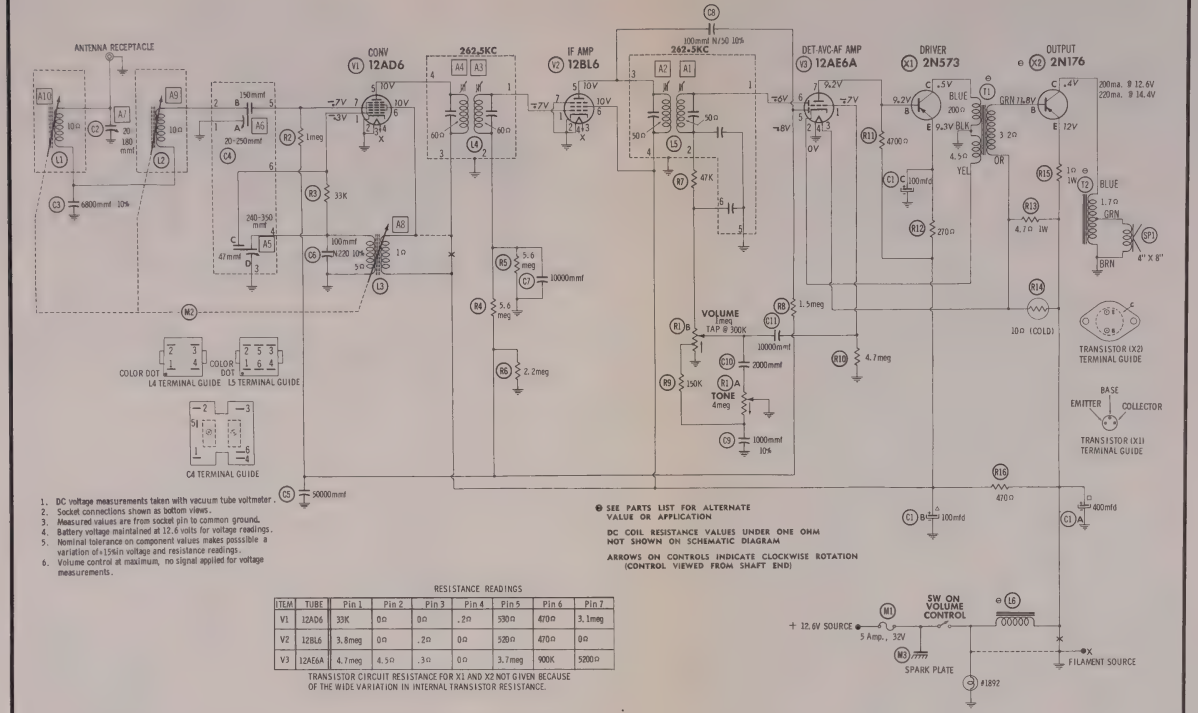
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KD116

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

SET 503 FOLDER 3



CHASSIS BOTTOM VIEW



1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12AD6	33K	0Ω	0Ω	.2Ω	530Ω	470Ω	3.1meg
V2	12BL6	3.8meg	0Ω	.2Ω	0Ω	530Ω	470Ω	0Ω
V3	12AE6A	4.7meg	4.5Ω	.3Ω	0Ω	3.7meg	900K	5200Ω

TRANSISTOR CIRCUIT RESISTANCE FOR X1 AND X2 NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1960

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

AMERICAN MOTORS
MODEL 8990811

PARTS LIST AND DESCRIPTIONS

TUBES

◆ GENERAL ELECTRIC ◆			◆ RAYTHEON ◆ SYLVANIA ◆		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Converter	12AD6	V3	Det. -AVC-AF Amp.	12AE6A
V2	IF Amplifier	12BL6			

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N573	Driver	2N235A	2N176	2N573	2N573	PNP
X2	2N176	Output				2N176	PNP Note 1

Note 1. When replacing, apply DC-4 grease (Part #1M490427) or equivalent to both sides of insulator. Tighten mounting screws securely.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	■400	16	23B542329	AFH-3-00-90	C0005	WP300.5		TVLS-3025 *	
B	▲100	16							
C	100	16							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	20-180	#20B534809				463		
C3	6800 10%		DI-6800		PM6D68	CCD-682		10TS-D68
C4A	20-250							
B	150	#20B564231	NPO-DI 150	DTZ-150	C10T15C		CNO-315	10TCC-T15
C	47		NPO-DI 47	DTZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47
D	240-350							
C5	50000		BPD-05	DD-503	H-0585	IDP-2-503 *	GP150	5HK-S50
C6	100 N220 5%							10TCR-T10
C7	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C8	100 N750 10%		N750-DI 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C9	1000 10%		DI-1000	DD-102	PM6D1	CCD-102	GP210	10TS-D10
C10	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C11	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

\# Motorola Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	4meg		18B564229	F1-82				
B	1meg			R2-59		† QJ-1274A	■ UE4129-S	Tone Volume
C	300K Tap Switch			KR-4				Power Off-On

† "Concentrikit" equivalent: K-6 kit with base elements and shafts: B11-240, P17-028 (Panel) B13-137X, R1-113 (Rear) 76-1 (Switch)

■ "STA-LOC" equivalent: FA46L, RU16T35, OS875A, ES1500, US41.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	1meg	
R3	33K	
R4	5.6meg	
R5	5.6meg	
R6	2.2meg	

\# Motorola Part Number.

ITEM No.	RATING	REMARKS
R7	47K	
R8	1.5meg	
R9	150K	
R10	4.7meg	
R11	4700Ω	

ITEM No.	RATING	REMARKS
R12	270Ω	
R13	4.7Ω 1W	
R14	10Ω Cold	#6K540634
R15	1Ω 1W	
R16	470Ω	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		MOTOROLA PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Ant. Coil	24B563217				
L2	RF Coil	24B563217				
L3	Osc. Coil	24B563214				
L4	Input IF Trans.	24K564264	BC-344	12-H1	RF-3	
L5	Output IF Trans.	24C564263	BC-346	12-H6		

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (Ω CURRENT 1000 ~)	MOTOROLA PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
L6	.700A	.3Ω	.0018 HY	25K564230-J ①						

① Alternate Part #25K564230

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	10 Tap ⓐ .3	1	25K564232-B ①					

① Alternate Part #25K564232.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA						NOTES
	PRI.	MOTOROLA PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	60Ω Tap ⓐ 3-4Ω	25K564236-K ①						

① Alternate Part #25K564236

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	4"x 8"	PM	3-4Ω	50C564237	48A2	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MOTOROLA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	1AG	5A 32V	65R122345	9K564392	301005 (1AG 5A 32V)	155004	AGA 5	HAF

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M2	Tuner	77D564238	Complete (AT-312)
M3	Spark Plate	64K535152	

CABINETS & CABINET PARTS

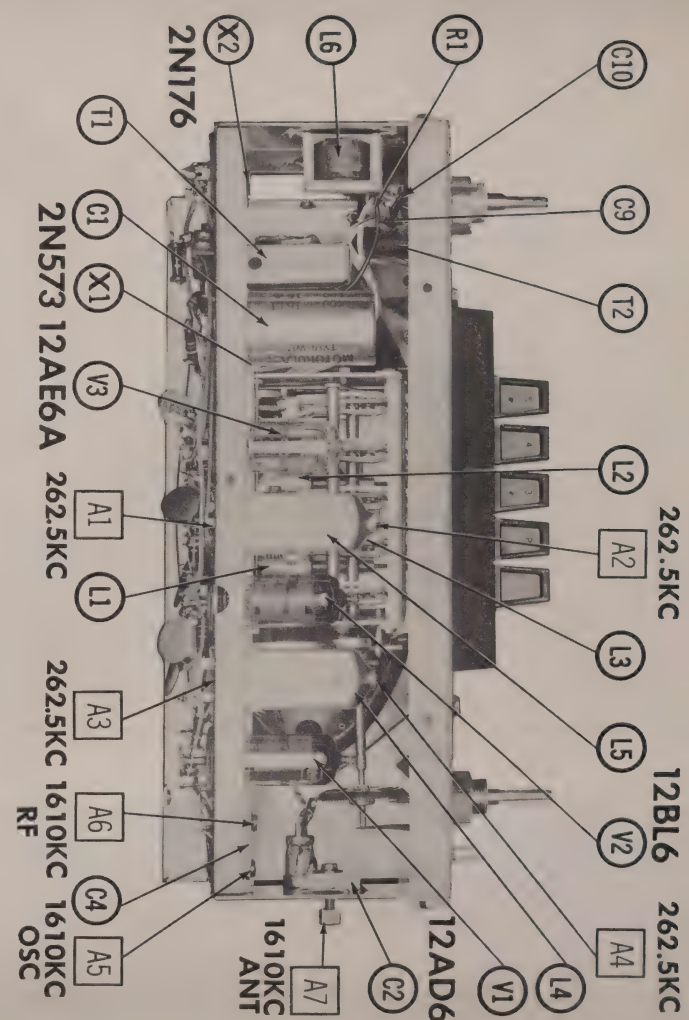
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	36K563710	Tuning, Volume
Knob	36K563712	Tone, Dummy
Pushbutton	38B562410	
Pointer	1B562710	Includes Stud

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire	Use BELDEN No. 8885
Bonding Strap	Use BELDEN No. 8661

CHASSIS—TOP VIEW

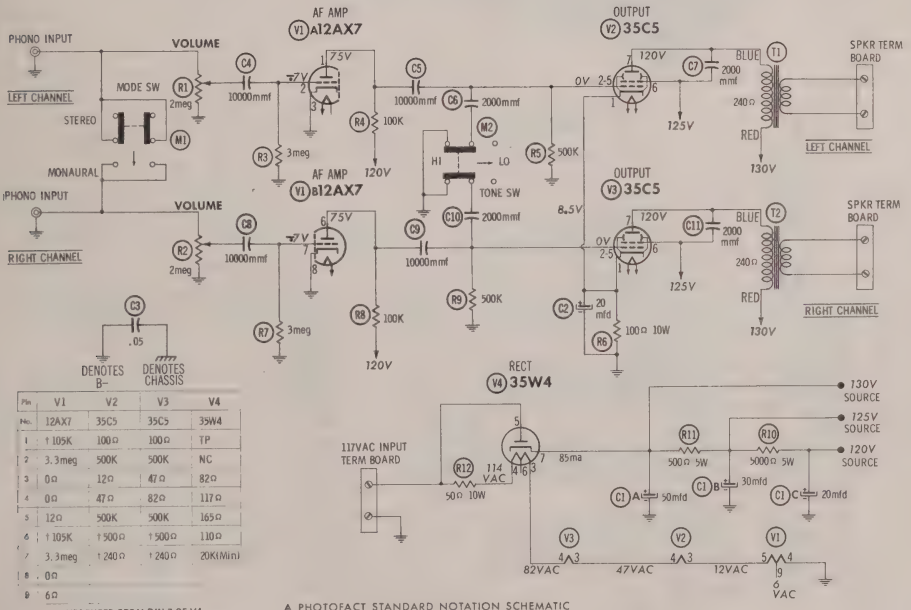


PHOTOFACT® Folder

ARCHER MODEL STEREODYNE/3

ARCHER MODEL
STEREODYNE/3

TRADE NAME	Archer Model Stereodyne/3
SUPPLIER	Radio Shack Corp, 730 Commonwealth Ave., Boston 17, Mass.
TYPE SET	AC Operated 4 Tube Stereo Amplifier
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 31 Watts, .33 Amp. @ 117 Volts AC



Pin No.	V1	V2	V3	V4
1	†105K	100Ω	100Ω	TP
2	3.3meg	500K	500K	NC
3	0Ω	12Ω	47Ω	82Ω
4	0Ω	47Ω	82Ω	117Ω
5	12Ω	500K	500K	165Ω
6	†105K	†500Ω	†500Ω	110Ω
7	3.3meg	†240Ω	†240Ω	20K(Min)
8	0Ω			
9	6Ω			

† MEASURED FROM PIN 7 OF V4.
NC NO CONNECTION TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1960

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KV007

SET 503 FOLDER 4

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC • RAYTHEON • SYLVANIA)
V1	Left Channel AF Amp. - Right Channel AF Amp.	12AX7
V2	Left Channel Output	35C5
V3	Right Channel Output	35C5
V4	Rectifier	35W4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ARCHER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	50	150		PWH3-11-30	C0080	FP311.55	TMT-3124	TVL-3438	
B	30	150							
C	20	150							
C2	20	25		PRS1330	BBR20-25	TT25X20	TD-25-25	TVA-1205	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S5
C4	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C5	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C6	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C7	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C8	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C9	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C10	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C11	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ARCHER PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg	1/2	34.05A	AB-76				Volume, Left Channel
B	Shaft			AK-29				
R2A	2meg	1/2	34.05A	AB-76				Volume, Right Channel
B	Shaft			AK-29				

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R3	3meg	
R4	100K	
R5	500K	
R6	100Ω 10W	IRC#PW10-100Ω

ITEM No.	RATING	REMARKS
R7	3meg	
R8	100K	
R9	500K	
R10	5000Ω 5W	IRC#PW5-5000Ω

ITEM No.	RATING	REMARKS
R11	500Ω 5W	IRC#PW5-500Ω
R12	50Ω 10W	IRC#PW10-50Ω

TRANSFORMER (AUDIO OUTPUT)

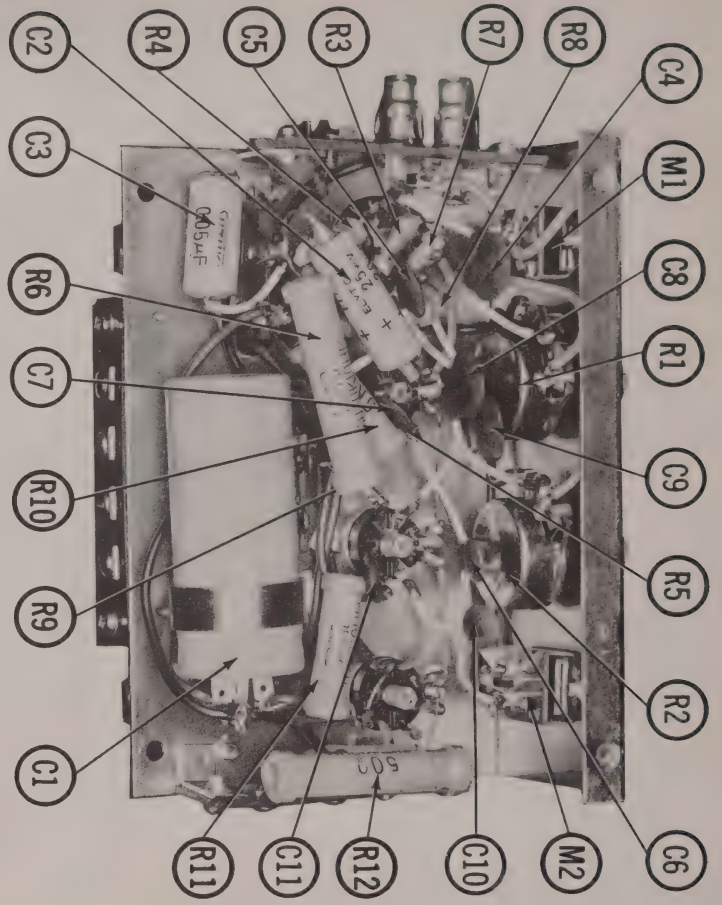
ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA ARCHER PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2400Ω	3-4Ω		A-3025①	AU-603	A-3876	24S50	S-1X	
T2	2400Ω	3-4Ω		A-3025①	AU-603	A-3876	24S50	S-1X	

① Drill New Mounting Hole.

MISCELLANEOUS

ITEM No.	PART NAME	ARCHER PART No.	NOTES
M1	Switch		Mode (DPDT Slide Type)
M2	Switch		Tone (DPDT Slide Type)

CHASSIS—BOTTOM VIEW



WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)

PHOTOFACT® Folder

ARKAY
MODEL FL-10

ARKAY
MODEL FL-10

ARKAY
MODEL FL-10

TRADE NAME	Arkay Model FL-10
MANUFACTURER	Arkay International, Inc., 88-06 Van Wyck Expressway, Jamaica 18, N. Y.
TYPE SET	AC Operated 6 Tube Audio Amplifier
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles RATING 75 Watts, .7 Amp. @117 Volts AC

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KX045

SET 503 FOLDER 5

PARTS LIST AND DESCRIPTIONS

TUBES

◆ GENERAL ELECTRIC ◆		RAYTHEON ◆ SYLVANIA ◆			
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Preamplifier	ECC83/12AX7	V4	Output	6V6GT
V2	AF Amp.-Phase Inv.	12AT7-ECC81	V5	Output	6V6GT
V3	Driver	12AU7-ECC82	V6	Rectifier	5Y3GT

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ARKAY PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■40	450		AFH3-44	C0350	FP376.9 TC75	TMT-3748	TVL-3787	
B	▲40	450							
C	▲40	450							
C2	10	450		PRS1720	BR1045	TC72	TD-10-450	TVA-1705	
C3	50	50		PRS1350	BR505	TC39	TD-50-50	TVA-1308	

FIXED CAPACITORS

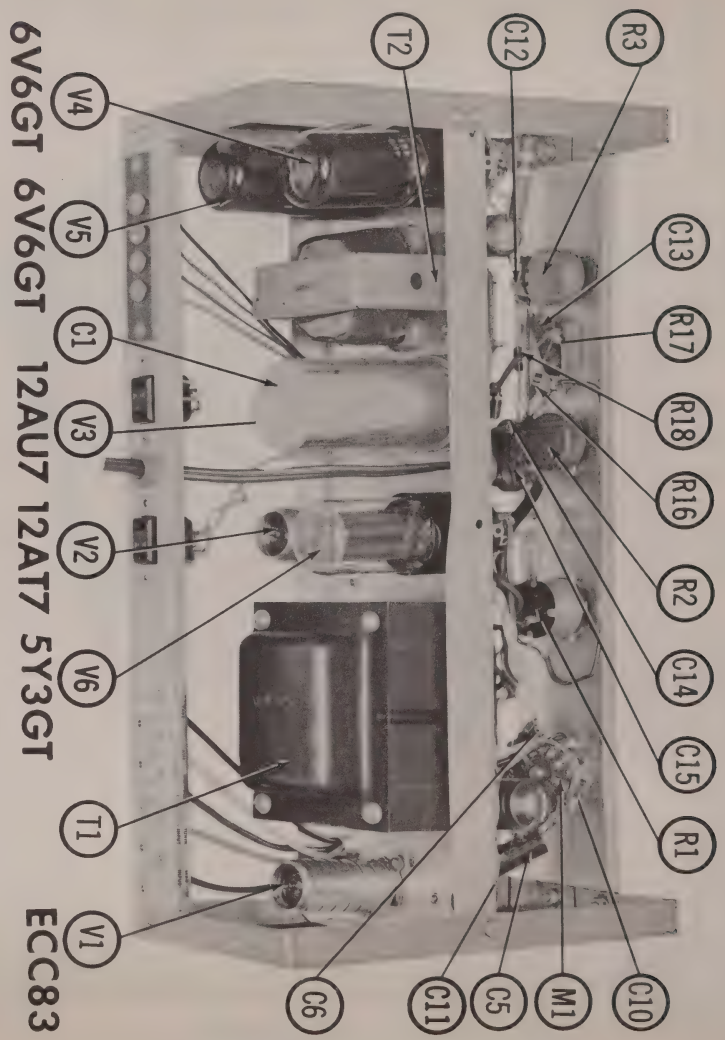
Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C5	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S5
C6	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C7	5000 10%		DI-5000		PM6D5	CCD-502	JL-250	10TS-D50
C8	270		DI-270	DD-271	L10T27	CCD-271	B-327	10TS-T27
C9	1000 10%		DI-1000	DD-102	PM6D1	CCD-102	GP210	10TS-D10
C10	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C11	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S5
C12	270 10%		DI-270	DD-271	L10T27	CCD-271	GP327	10TS-T27
C13	.0047 400V		P488N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C14	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C15	.02 400V		P488N-02	DD-203	CUB4S2	4DP-2-202	GEM-412	4TM-S2
C16	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S5
C17	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S5
C18	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S5
C19	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S5
C20	.05 600V		P688N-05	DD-503	CUB6S5	6DP-3-503	GEM-615	6TM-S5

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ARKAY PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½		B-60-S	A47-500K-Z	Q13-133	U48	Volume
B	Shaft			Not Req.	RS-2	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	76-1	US-26	Power Off-On
R2A	1meg	½	BA811-2224	B-69	A47-1meg-S	Q11-137	U54	Bass
B	Shaft			Not Req.	RS-2	Not Req.	Not Req.	
R3A	1meg	½	BA811-2224	B-69	A47-1meg-S	Q11-137	U54	Treble
B	Shaft			Not Req.	RS-2	Not Req.	Not Req.	
R4A	50Ω	2(WW)		WN-500	A43-50	W11-050	C50P	Hum Balance
B	Shaft			Not Req.	FKS-1/4	SK5	Not Req.	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R5	47K	
R6	270K	
R7	220Ω	
R8	1meg	
R9	100K	
R10	68K	
R11	1500Ω	
R12	3300Ω	
R13	220K	
R14	68K	

ITEM No.	RATING	REMARKS
R15	68K	
R16	100K	
R17	10K	
R18	22K	
R19	100K	
R20	820Ω	
R21	56K	
R22	47K	
R23	47K	
R24	470K	

ITEM No.	RATING	REMARKS
R25	47K	
R26	560Ω	
R27	470K	
R28	47K	
R29	100K	
R30	270Ω 2W	
R31	100K	
R32	33K	
R33	10K 1W	
R34	22Ω	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	PRI.	SEC. 1	SEC. 2	ARKAY PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V@ .7A	680 VCT @ .095A	5V@ 2A		P-2952		PM8409	24R04	R-11B	
	SEC. 3	SEC. 4	SEC. 5							
	6.3V@ 1.9A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ARKAY PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	9000Ω CT Screen Taps@ 6000Ω	16Ω Taps@ 8Ω, 4Ω							

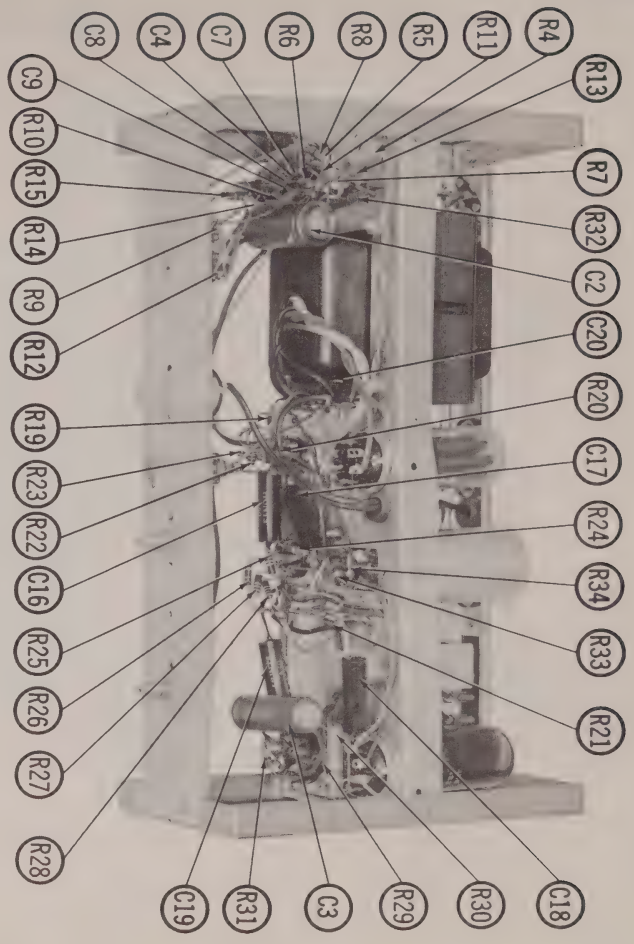
MISCELLANEOUS

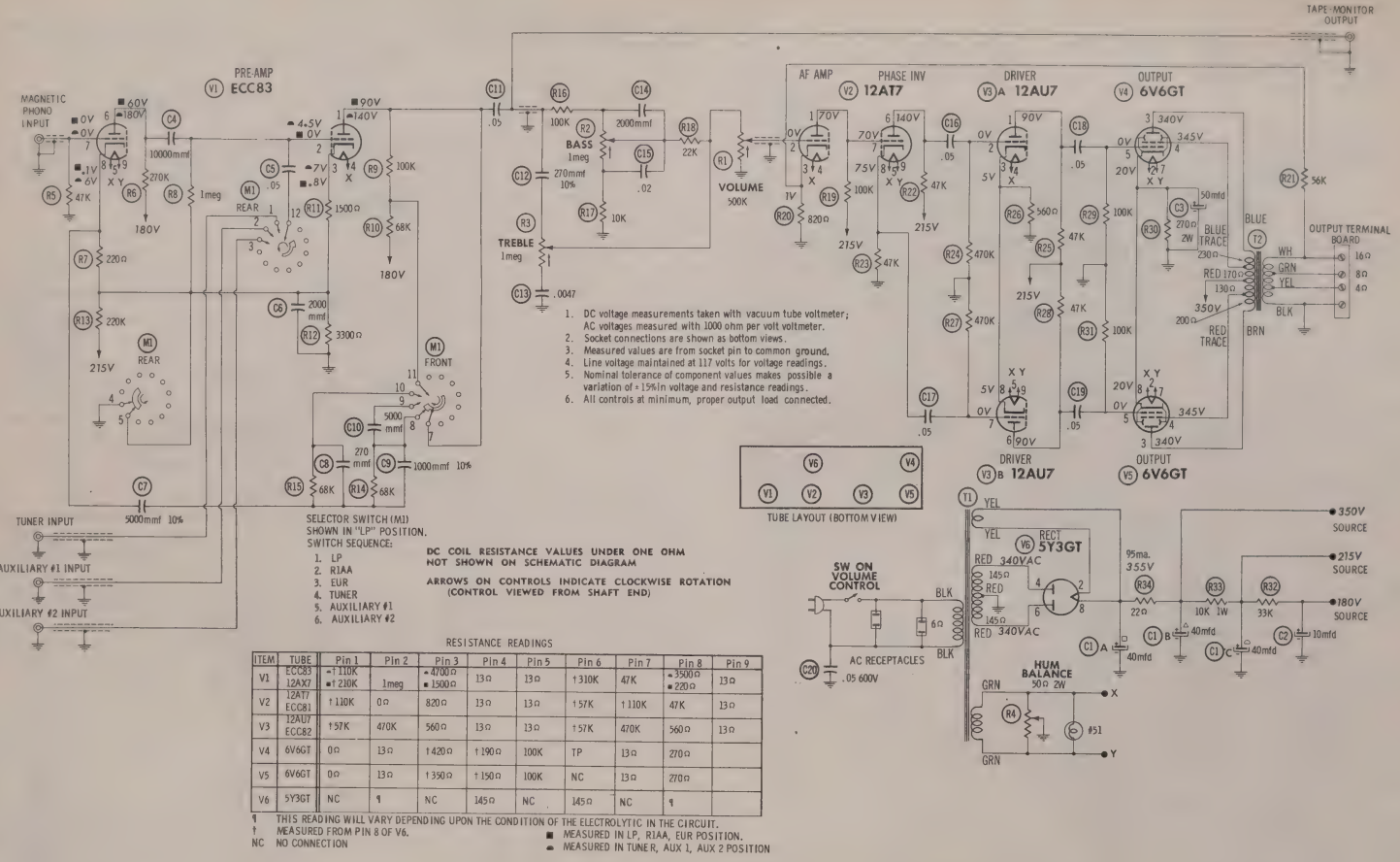
ITEM No.	PART NAME	ARKAY PART No.	NOTES
M1	Switch		Function Selector (Rotary Wafer Type)

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC83 12AX7	▬ †110K ■ †210K	1meg	▬ 470Ω ■ 1500Ω	13Ω	13Ω	†310K	47K	▬ 3500Ω ■ 220Ω	13Ω
V2	12AT7 ECC81	†110K	0Ω	820Ω	13Ω	13Ω	†57K	†110K	47K	13Ω
V3	12AU7 ECC82	†57K	470K	560Ω	13Ω	13Ω	†57K	470K	560Ω	13Ω
V4	6V6GT	0Ω	13Ω	†420Ω	†190Ω	100K	TP	13Ω	270Ω	
V5	6V6GT	0Ω	13Ω	†350Ω	†150Ω	100K	NC	13Ω	270Ω	
V6	5Y3GT	NC	¶	NC	145Ω	NC	145Ω	NC	¶	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 8 OF V6.
NC NO CONNECTION
■ MEASURED IN LP, RIAA, EUR POSITION.
▬ MEASURED IN TUNER, AUX 1, AUX 2 POSITION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1960

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

ARKAY MODEL FL-10

PHOTOFACT® Folder

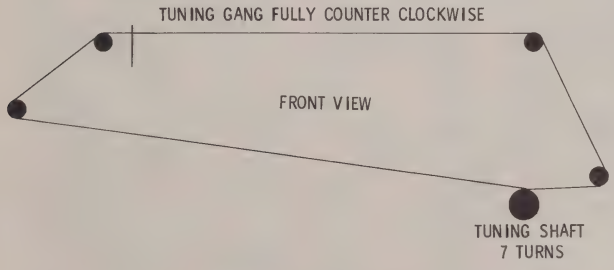
**BLONDER-TONGUE
MODEL R-20**

BLONDER-TONGUE
MODEL R-20

BLONDER-TONGUE
MODEL R-20

TRADE NAME	Blonder-Tongue Model R-20
MANUFACTURER	Blonder-Tongue Labs., 9 Alling Street, Newark 2, N. J.
TYPE SET	AC-DC Operated 6 Tube FM Receiver
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE	FREQ. MOD. 88 - 108MC RATING 30 Watts, .32 Amp. @ 117 Volts AC

DIAL CORD STRINGING

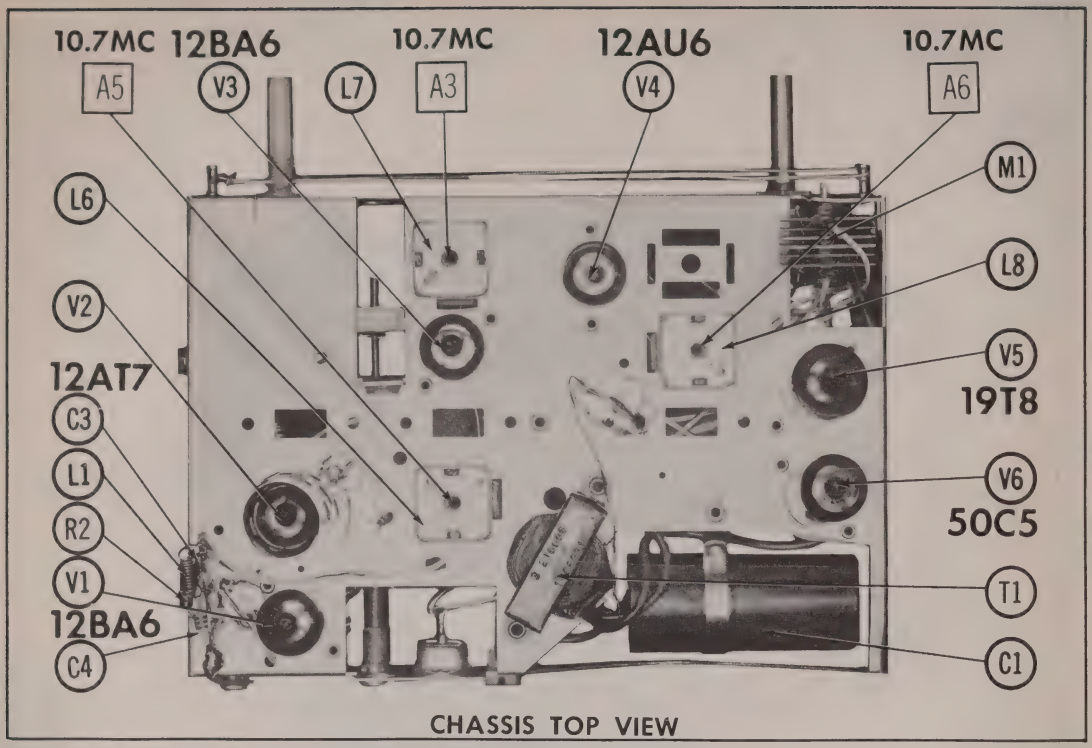


SET 503 FOLDER 6

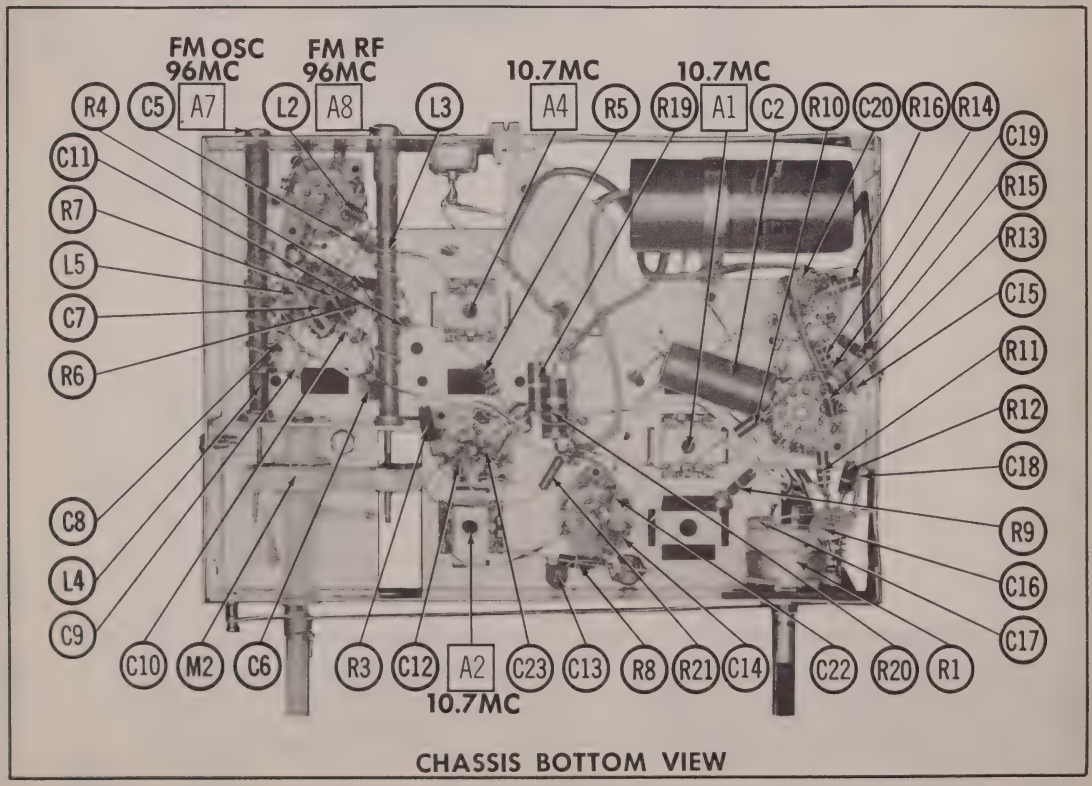
HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KI096



CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.
Suggested Alignment Tools: Al thru A6 .... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100K (±1%) resistors in series from point (A) to chassis. The junction of these two resistors is alignment point (C) as shown on the schematic.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .01mfd to pin 7 (grid) of Mixer. Low side to chassis.	10.7MC (Unmod.)	Point of non-interference	DC probe to point (A). Common to chassis.	A1, A2, A3, A4, A5	Adjust for maximum deflection.
2.	"	"	"	DC probe to point (B). Common to point (C).	A6	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
1.	High side thru .01mfd to pin 7 (grid) of Mixer. Low side to chassis.	10.7MC (450KC Swp)	Point of non-interference	Vert. Amp. to point (A). Low side to chassis.	A1, A2, A3, A4, A5	Disconnect stabilizing capacitor C2. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C2.
2.	"	"	"	Vert. Amp. to point (B). Low side to chassis.	A6	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A1 for maximum amplitude and straightness of crossover lines.

RF ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
3.	High side to antenna connection. Low side to chassis.	96MC (Unmod.)	96MC	DC probe to point (A). Common to chassis.	A7, A8	Adjust for maximum output.

FIG. 1

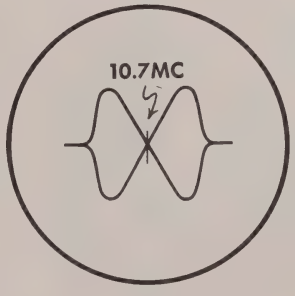


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	12BA6	V4	2nd IF Amplifier	12AU6
V2	Mixer-Osc.	12AT7	V5	Ratio Det-AF Amp.	19T8
V3	1st IF Amplifier	12BA6	V6	Output	50C5

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Blonder-Tongue PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	80	150	2300022	PRS2230	BBRD8415	TCD4975	TDLD-11	TVA-2462	
B	40	150							
C2	1	50	2310501	PRSI300	BBRI-50	TC31	TD-1-50	TVA-1300	①

① Some versions may use 2mfd in this application.(Part #2320501).

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C4	10 10%		NPO-SI 10	TCZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C5	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C6	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C7	.33	#2133802						
C8	18 NPO 5%			TCZ-18	C10Q18C		CNO-418	10TCC-Q18
C9	22 N220 5%	#2122006						10TCR-Q22
C10	15 N75 5%	#2115010						
C11	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C12	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C13	47 N750		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C14	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C15	100 N1500	#2110103		TCL-100		*		
C16	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C17	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C18	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C19	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C20	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C21	.01 200V		P288N-01	D6-103	CUB251	4DP-1-103	GEM-411	4TM-SI
C22	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C23	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10

Blonder-Tongue Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Blonder-Tongue PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	10meg	½	1410601	B-98	A47-10meg-S	Q11-143	U82	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KR-1	SWE-12	76-1	US-26	Power Off-On

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	220K	
R3	220Ω	
R4	220K	
R5	47K	
R6	33K	
R7	4700Ω	
R8	220K	

ITEM No.	RATING	REMARKS
R9	22K	
R10	68Ω	
R11	68K	
R12	10meg	
R13	220K	
R14	470K	
R15	150Ω	

ITEM No.	RATING	REMARKS
R16	470Ω	
R17	68K	
R18	47K	
R19	22Ω 1W	
R20	820Ω 2W	
R21	220Ω	

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		Blonder-Tongue PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Antenna Coil	3340012	BC-561	4602		luh
L2	RF Choke	3340008	BC-561	4602		luh
L3	RF Coil	3330041				
L4	Osc. Coil	3330044				
L5	RF Choke	3340007	BC-561	4602		luh
L6	1st IF Trans.	3220018	FM-254	1463		
L7	2nd IF Trans.	3220018	FM-254	1463		
L8	Ratio Det.	3220020	FM-255	1465		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	Blonder-Tongue PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2300Ω	3-4Ω	3210006	A-3025	AU-605	A-3332	24S53	S-12X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Blonder-Tongue PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	5140001	4A1	

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					
	CURRENT (Measured)	Blonder-Tongue PART No.	ITT PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.075A	4400031	1235AH *	1N1763 ♦	100A *	SR200 ♦	* Selenium ♦ Silicon

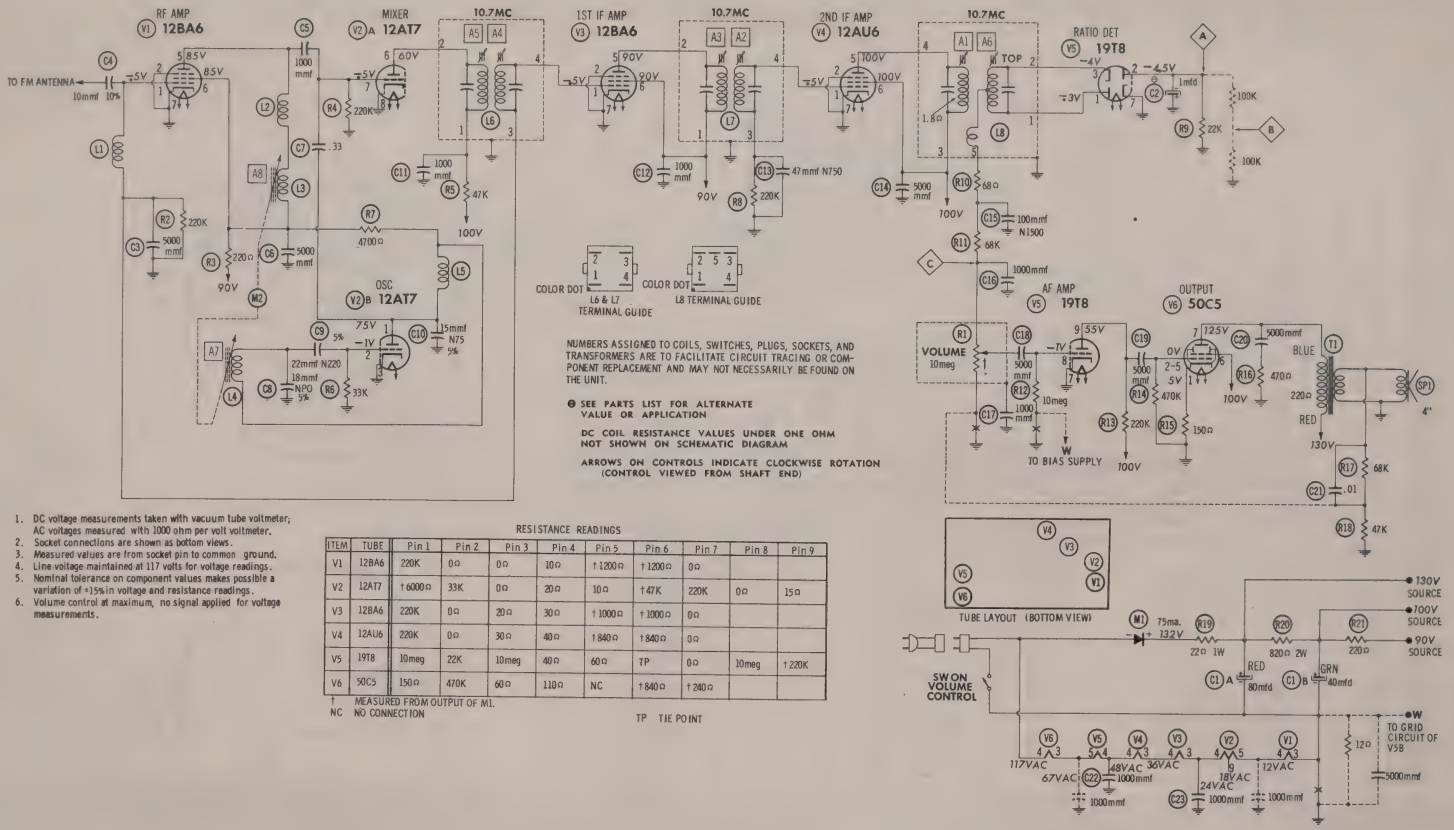
MISCELLANEOUS

ITEM No.	PART NAME	Blonder-Tongue PART No.	NOTES
M2	Tuner Assembly		Includes Shaft and Coils

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BA6	220K	0Ω	0Ω	10Ω	↑1200Ω	↑1200Ω	0Ω		
V2	12AT7	↑6000Ω	33K	0Ω	20Ω	10Ω	↑47K	220K	0Ω	15Ω
V3	12BA6	220K	0Ω	20Ω	30Ω	↑1000Ω	↑1000Ω	0Ω		
V4	12AU6	220K	0Ω	30Ω	40Ω	↑840Ω	↑840Ω	0Ω		
V5	19T8	10meg	22K	10meg	40Ω	60Ω	TP	0Ω	10meg	↑220K
V6	50C5	150Ω	470K	60Ω	110Ω	NC	↑840Ω	↑240Ω		

↑ MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION

TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC

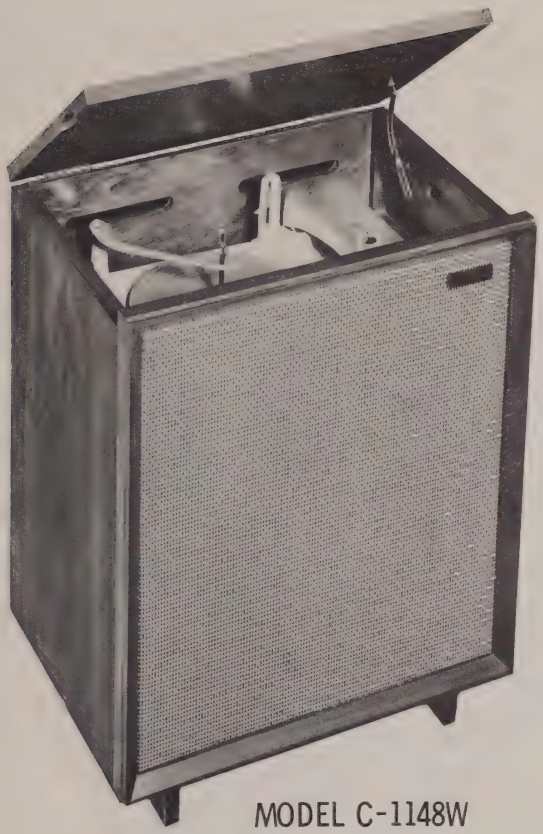
©Howard W. Sams & Co., Inc. 1960

BLONDER-TONGUE
MODEL R-20

PHOTOFACT® Folder

COLUMBIA MODELS
C-1012B, G, C-1148B, M, W

COLUMBIA MODELS
C-1012B, G, C-1148B, M, W



MODEL C-1148W

COLUMBIA MODELS
C-1012B, G, C-1148B, M, W

TRADE NAME	Columbia Models C-1012B, C-1012G, C-1148B, C-1148M, C-1148W
MANUFACTURER	CBS Electronics, 100 Endicott Street, Danvers, Mass.
TYPE SET	AC Operated 3 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 — 120 Volts AC, 60 Cycles RATING 33 Watts, .38 Amp. @ 117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER USED IN MODEL C-1012 — SEE SIMILAR V-M 1201 — PHOTOFACT SET 436 FOLDER 18 OR RECORD CHANGER MANUAL RC-12

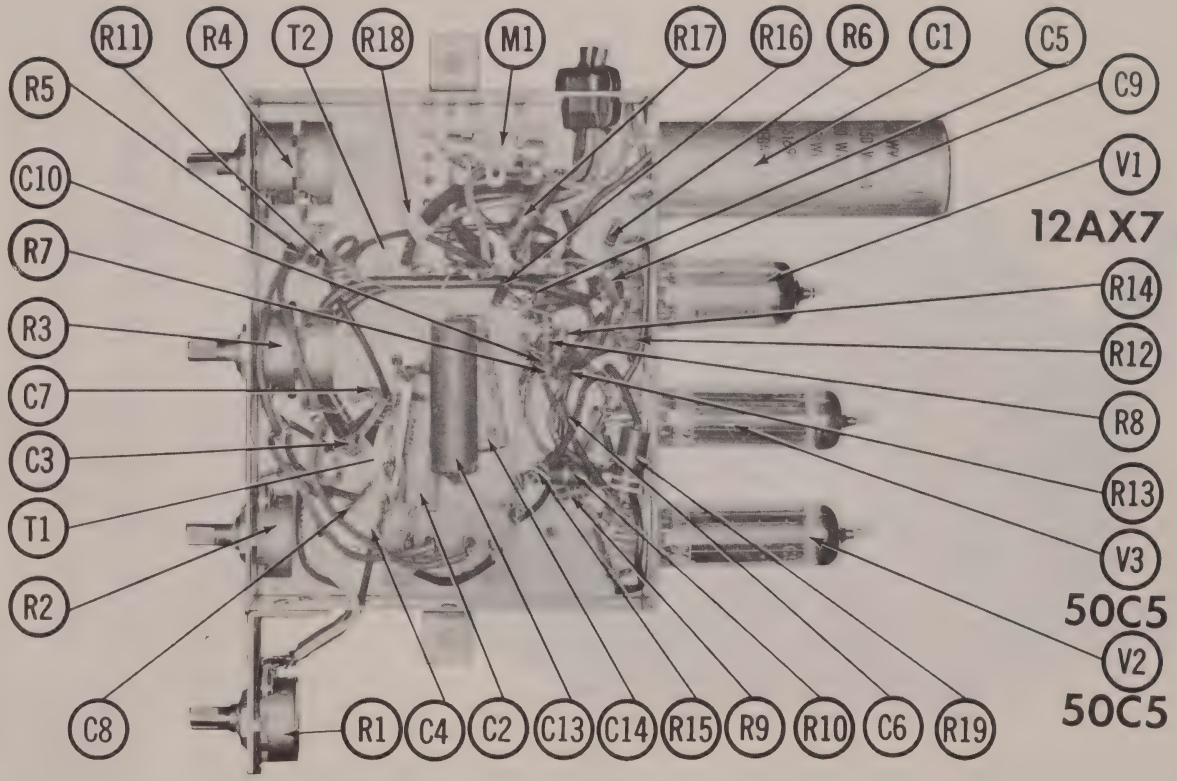
FOR SERVICE INFORMATION ON RECORD CHANGER USED IN MODEL C-1148 — SEE MONARCH UA8 — PHOTOFACT SET 381 FOLDER 11 OR RECORD CHANGER MANUAL RC-11

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

JT976

SET 503 FOLDER 7



CHASSIS BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •)
V1	Channel A AF Amp. - Channel B AF Amp.	12AX7
V2	Channel A Output	50C5
V3	Channel B Output	50C5

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	COLUMBIA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	40	150	11G760	PR4-200	BBRQ44315C	WQ230	CDB-Q-1001	TVAS-4519 *	
B	30	150							
C	20	150							
D	20	25							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.05 600V		P688N-05	DD-503	CUB6S5	6DP-3-503	GEM-615	6TM-S5
C3	470 10%		DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C4	10000 10%		DI-10000		PM6D1	CCD-103	GEM-1611	10TS-S10
C5	270 10%		DI-270	DD-271	L10T27	CCD-271	GP327	10TS-T27
C6	10000 10%		DI-10000		PM6S1	CCD-103	GEM-1611	10TS-S10
C7	470 10%		DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C8	10000 10%		DI-10000		PM6S1	CCD-103	GEM-1611	10TS-S10
C9	270 10%		DI-270	DD-271	L10T27	CCD-271	GP327	10TS-T27
C10	10000 10%		DI-10000		PM6S1	CCD-103	GEM-1611	10TS-S10
C11	.5 100V		P288N-5		CUB2P5	2DP-5-504	GEM-205	2TM-P5
C12	.5 100V		P288N-5		CUB2P5	2DP-5-504	GEM-205	2TM-P5
C13	.05 600V		P688N-05	DD-503	CUB6S5	6DP-3-503	GEM-615	6TM-S5
C14	.05 600V		P688N-05	DD-503	CUB6S5	6DP-3-503	GEM-615	6TM-S5

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	COLUMBIA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	3meg	1/2	9G642	B-85	A47-3meg-S	Q13-140	U-57	Loudness, Channel A
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R2A	3meg	1/2	9G642	B-85	A47-3meg-S	Q13-140	U57	Loudness, Channel B
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R3A	500K	1/2	9G644	B-59	AD47-500K-S		FA55L	Treble, Channel A
B	500K	1/2		SR-59	Not Req.		RU55L	Treble, Channel B
C	Shaft			Not Req.	KSS-3		CS3500	
R4A	3meg	1/2	9G645	B-84			FA36L	Bass, Channel A
B	3meg	1/2		SR-84			RU36L	Bass, Channel B
C	Shaft			Not Req.			CS3500	

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R5	100K	
R6	6.8meg	
R7	100K	
R8	270K	
R9	470K	

ITEM No.	RATING	REMARKS
R10	100Ω 1W	
R11	100K	
R12	6.8meg	
R13	100K	
R14	270K	

ITEM No.	RATING	REMARKS
R15	470K	
R16	2200Ω	
R17	100Ω 1W	
R18	47Ω 2W	
R19	47Ω 2W	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA COLUMBIA PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2900Ω CT	3-4Ω CT	3G253						① Drill New Mounting Holes
T2	2000Ω	3-4Ω	3G254	A-2928①	AU-607①	A-3876①	24S53①	S-1X①	

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA COLUMBIA PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	6"	PM	3-4Ω	1G160	6A31	* Used in Models C1012B, G
SP2	4"	PM	3-4Ω	1G159	4A1	
SP3	6"	PM	3-4Ω	1G160	6A31	
SP4	4"	PM	3-4Ω	1G159	4A1	
	6"	PM		1G157 *		
	3"	PM		1G158 *		

RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA COLUMBIA PART No.	ITT PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.060A	10G616 *	RE504 *	1N1763 *	M 150 *	SR200 *	* Silicon

PHONO CARTRIDGE

ITEM No.	COLUMBIA PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE	JENSEN PART No. CARTRIDGE	JENSEN PART No. NEEDLE	SONOTONE PART No. CARTRIDGE	SONOTONE PART No. NEEDLE
M2	CD-SC-2S	13TB		26S	Si-1 S3-3			8TA4-S	N-8TA-S

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA COLUMBIA PART No.	REPLACEMENT DATA JENSEN PART No.	REMARKS
M3		CS-1X † or CS-1XD	† Jewel

MISCELLANEOUS

ITEM No.	PART NAME	COLUMBIA PART No.	NOTES
M4	Switch		Off-On (Part of Changer)
M5	Motor		Phono Drive (Part of Changer)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

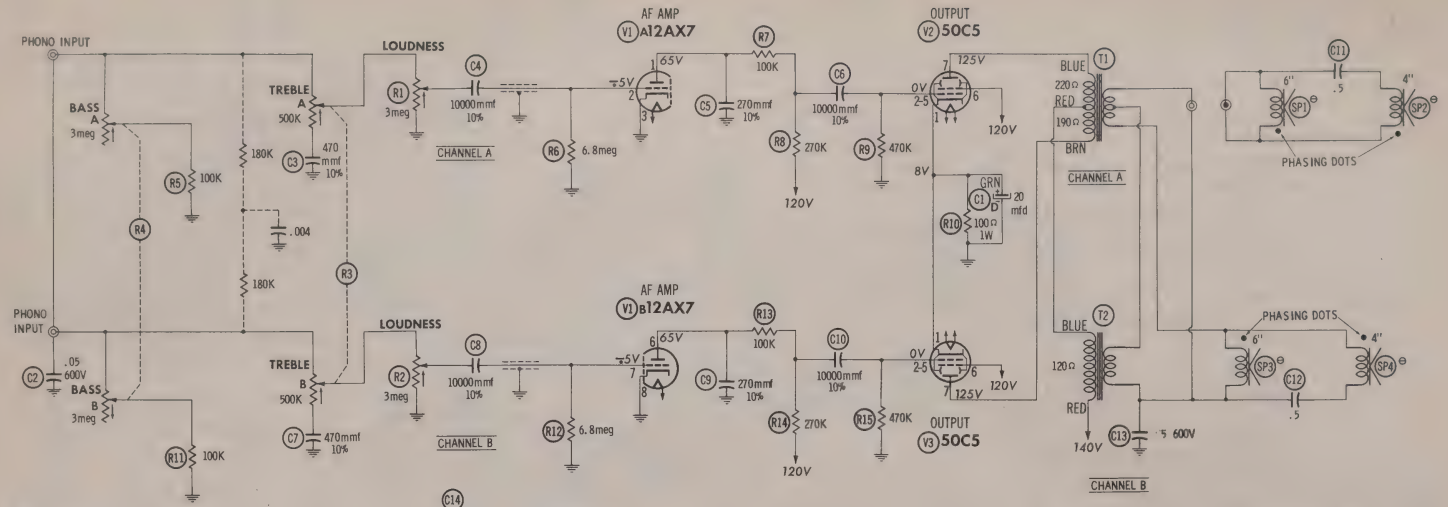
NAME	PART NO.	DESCRIPTION
Knob	8G522	Loudness, Bass, Treble, Model C-1148W, B, M
Knob	8G521	Loudness, Bass, Treble, Model C-1012B, G
Handle	18G705	Cabinet, Gray, Model C-1012G
Handle	18G707	Cabinet, Blue, Model C-1012B

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

COLUMBIA MODELS
C-1012B, G, C-1148B, M, W

FOLDER 7



● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†370K	6.8meg	0Ω	12Ω	0Ω	†370K	6.8meg	0Ω	6Ω
V2	50C5	100Ω	470K	62Ω	12Ω	470K	†2300Ω	†440Ω		
V3	50C5	100Ω	470K	160Ω	110Ω	470K	†2300Ω	†410Ω		

† MEASURED FROM OUTPUT OF M1.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1960

COLUMBIA MODELS C-1012B, G, C-1148B, M, W

PHOTOFACT® Folder

COLUMBIA MODELS C-1162M, W

COLUMBIA MODELS C-1162M, W

COLUMBIA MODELS C-1162M, W

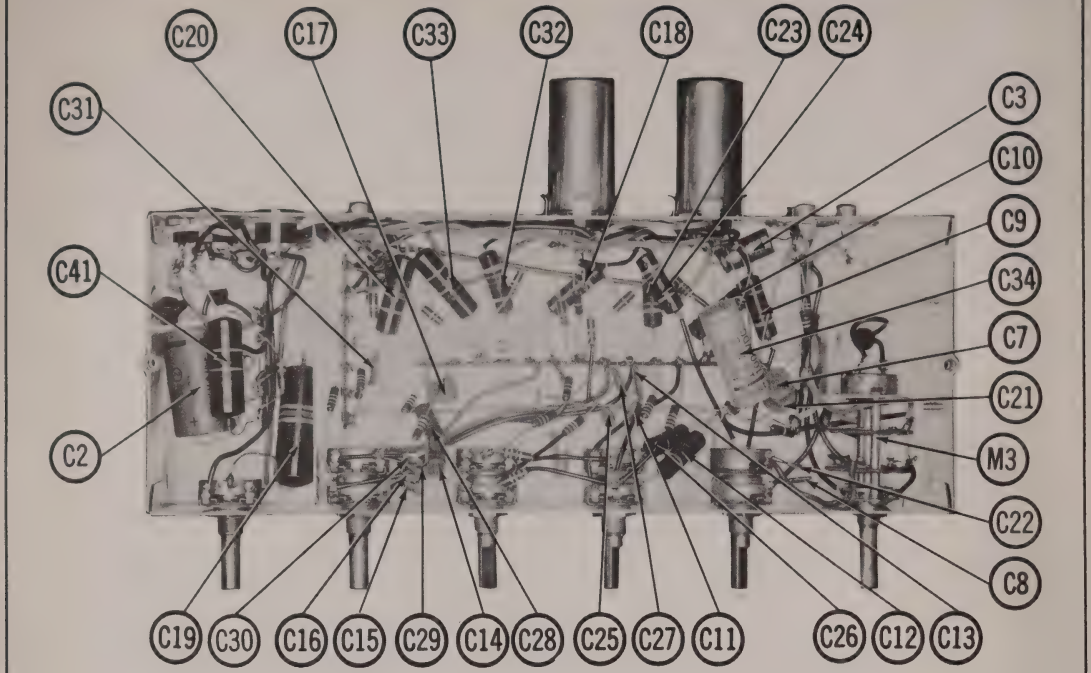
TRADE NAME	Columbia Models C-1162M, C-1162W
MANUFACTURER	CBS Electronics, 100 Endicott Street, Danvers, Mass.
TYPE SET	AC Operated 6 Tube Stereo Phono Amplifier With 4-Speed Automatic Record Changer
POWER SUPPLY	110 — 120 Volts AC, 60 Cycles RATING 78 Watts, .72 Amp. @117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER — SEE GLASER-STEERS GS-77 — PHOTOFACT SET 399 FOLDER 7 OR RECORD CHANGER MANUAL RC-11

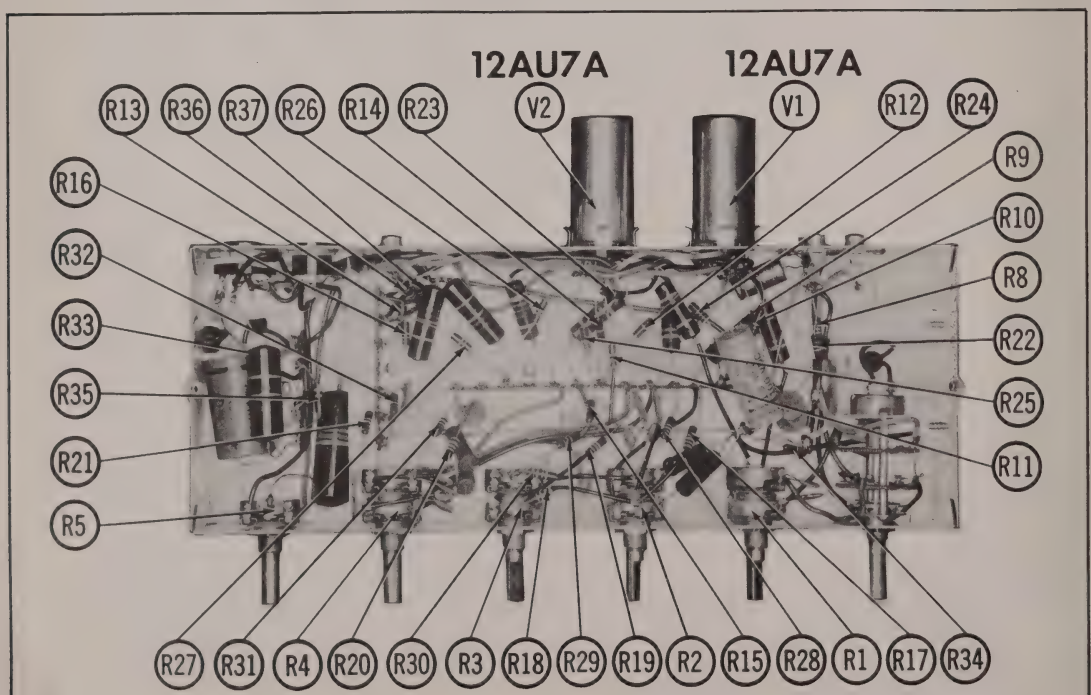
HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

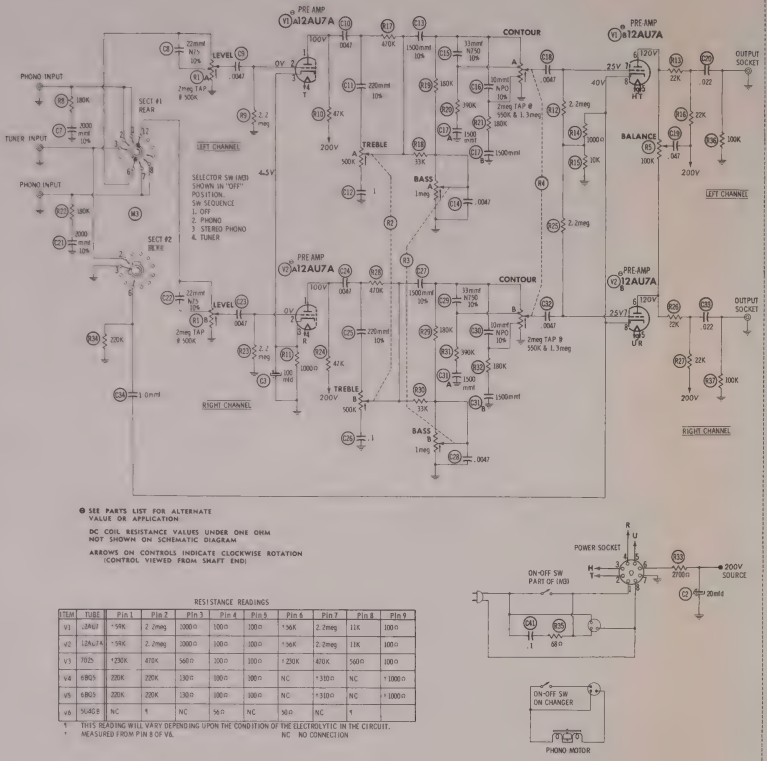
JT959

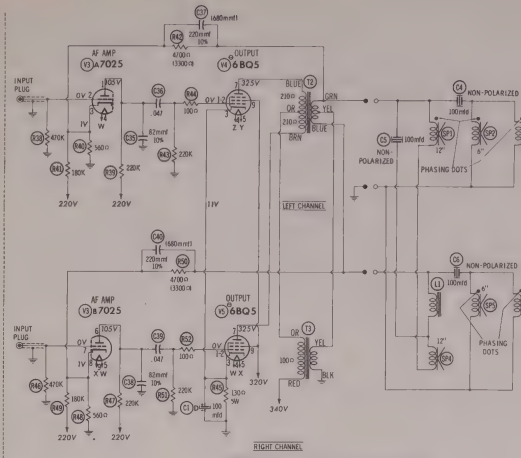


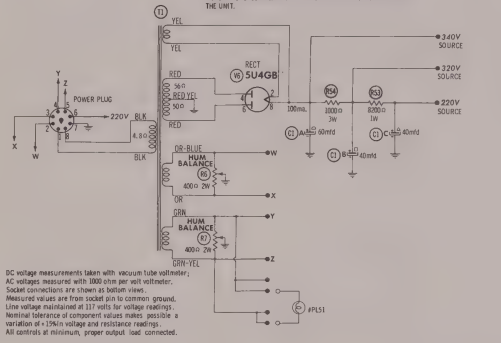
PREAMP CHASSIS – CAPACITOR & MISC. IDENT.



PREAMP CHASSIS – RESISTOR & TUBE IDENT.







● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AU7	*59K	2.2meg	1000Ω	100Ω	100Ω	*56K	2.2meg	11K	100Ω
V2	12AU7A	*59K	2.2meg	1000Ω	100Ω	100Ω	*56K	2.2meg	11K	100Ω
V3	7025	*230K	470K	560Ω	100Ω	100Ω	*230K	470K	560Ω	100Ω
V4	6BQ5	220K	220K	330Ω	100Ω	100Ω	NC	*310Ω	NC	*1000Ω
V5	6BQ5	220K	220K	330Ω	100Ω	100Ω	NC	*310Ω	NC	*1000Ω
V6	5U4GB	NC	¶	NC	56Ω	NC	56Ω	NC	¶	

* THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT. MEASURED FROM PIN 8 OF V6.

NC NO CONNECTION

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±10% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1960

COLUMBIA MODELS C-1162M, W

PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
	• GENERAL ELECTRIC •		• RAYTHEON •		• SYLVANIA •
V1	Left Channel Preamp.	12AU7A(ECC82/12AU7)*	V4	Left Channel Output	6BQ5 (EL84/6BQ5) *
V2	Right Channel Preamp.	12AU7A(ECC82/12AU7)*	V5	Right Channel Output	6BQ5 (EL84/6BQ5) *
V3	Left Channel AF Amp. - Right Channel AF Amp.	7025	V6	Rectifier	5U4GB

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA COLUMBIA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲60	400	11E748	AFH4-86-20	C1090	FP375	TMT-141	TVL-3755	
B	■40	400			BR6045	TC795	TD-50-450	TVA-1714	
C	▲40	400							
D	100	25							
C2	20	350		PRS1735	BR2035	TC65	TD-20-350	TVA-1608	
C3	100	10		PWE10100	NLW100-10	TT15X100	ML100-15	TE-1119.3	
C4	100	50NP	11E747		BR10015	TC496 †		TVANS-1310.1†	
C5	100	50NP	11E747		BR10015	TC496 †		TVANS-1310.1†	
C6	100	50NP	11E747		BR10015	TC496 †		TVANS-1310.1†	

† Use 2 units. Connect negative terminals together. Connect positive terminals into circuit the same as the original non-polarized unit.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C7	2000 10%		DI-2000		PM6D2	CCD-202	GP220	10TS-D20
C8	22 N75 10%					*		
C9	.0047 400V		P488N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C10	.0047 400V		P488N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C11	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C12	.1 400V		P488N-1	DF-104	CUB2P1	4DP-3-104	GEM-401	4TM-P1
C13	1500 10%		DI-1500	DD-152	PM6D15	CCD-152	GP215	10TS-D15
C14	.0047 400V		P488N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C15	33 N750 10%		N750-DI 33	DTN-33	C10Q33U	CCTN-330	CN7-433	10TCU-Q33
C16	10 NPO 10%		NPO-DI 10	DTZ-10	C10QIC	CCTO-100	CNO-410	10TCC-Q10

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C17A	1500		BPD-2X0015	DD3-152	BYC6D01	CCD-152	B2X215	5HK-2D15
B	1500					CCD-152		
C18	.0047 400V		P688N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C19	.047 200V		P688N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C20	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C21	2000 10%		DI-2000		PM6D2	CCD-202	GP220	5HK-D20
C22	22 N75 10%					*		
C23	.0047 400V		P488N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C24	.0047 400V		P488N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C25	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C26	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C27	1500 10%		DI-1500	DD-152	PM6D15	CCD-152	GP215	10TS-D15
C28	.0047 400V		P488N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C29	33 N750 10%		N750-DI 33	DTN-33	C10Q33U	CCTN-330	CN7-433	10TCU-Q33
C30	10 NPO 10%		NPO-DI 10	DTZ-10	C10QIC	CCTO-100	CNO-410	10TCC-Q10
C31A	1500		BPD-2X0015	DD3-152	BYC6D15	CCD-152	B2X215	5HK-2D15
B	1500					CCD-152		
C32	.0047 400V		P688N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C33	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C34	1.0 100V		P288N-1.0		CUB2W1		GEM-21	2TM-M1
C35	82 10%		1469-000082	TCZ-82	22R5Q82	CM-19B-820K	CNO-482	MS-482
C36	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C37	220 10%	(680) †	DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C38	82 10%		1469-000082	TCZ-82	22R5Q82	CM-19B-820K	CNO-482	MS-482
C39	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C40	220 10%	(680) †	DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C41	.1 400V		P488N-1	DF-104	CUB2P1	4DP-3-104	GEM-401	4TM-P1

† Alternate Value.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA COLUMBIA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg	½	9E624	BT-174			FA26T55	Level, Left Channel
	500K Tap							
B	2meg	½		STR-174			RU26T55	Level, Right Channel
	500K Tap							
C	Shaft			Not Req.			CS3500	
R2A	500K	½	9E621	B-60	AD47-500K-Z		FA55A	Treble, Left Channel
B	500K	½		SR-60	Not Req.		RU55A	Treble, Right Channel
C	Shaft			Not Req.	FS-3		CS3500	
R3A	1meg	½	9E622	B-70	AD47-1meg-Z		FA16A	Bass, Left Channel
B	1meg	½		SR-70	Not Req.		RU16A	Bass, Right Channel
C	Shaft			Not Req.	FS-3		CS3500	
R4A	2meg *	½	9E625	BT-175				Contour, Left Channel
B	2meg *	½		STR-175				Contour, Right Channel
R5A	100K	½	9E623	B-40	A47-100K-S	Q11-128	U41	Balance
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R6A	400Ω	2(WW)	9E594	WN-401	A43-400	W11-202	R500L	Hum Balance
B	Shaft			Not Req.	FKS-1/4	SK5	Not Req.	
R7A	400Ω	2(WW)	9E594	WN-401	A43-400	W11-202	R500L	Hum Balance
B	Shaft			Not Req.	FKS-1/4	SK5	Not Req.	

* Taps @ 550K and 1.3meg.

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R8	180K	
R9	2.2meg	
R10	47K	
R11	1000Ω	
R12	2.2meg	
R13	22K	
R14	1000Ω	
R15	10K	
R16	22K	
R17	470K	
R18	33K	
R19	180K	
R20	390K	
R21	180K	
R22	180K	
R23	2.2meg	
R24	47K	
R25	2.2meg	
R26	22K	
R27	22K	
R28	470K	
R29	180K	
R30	33K	
R31	390K	
R32	180K	
R33	2700Ω	
R34	220K	
R35	68Ω	
R36	100K	
R37	100K	
R38	470K	
R39	220K	
R49	560Ω	
R41	180K	
R42	4700Ω	(3300Ω) *
R43	220K	
R44	100Ω	
R45	130Ω 5W	IRC#PW5-130Ω
R46	470K	
R47	220K	
R48	560Ω	
R49	180K	
R50	4700Ω	(3300Ω) *
R51	220K	
R52	100Ω	
R53	8200Ω 1W	
R54	1000Ω 3W	IRC#PW3-1K

* Alternate Value.

CROSSOVER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA							NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ∿)	COLUMBIA PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.		
L1		.6Ω	3.5MH	21E210							

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	PRI.	SEC. 1	SEC. 2	COLUMBIA PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V @ .72A	580VCT @ .100A	5V @ 3A	2E115						
	SEC. 3	SEC. 4	SEC. 5							
	6.3V @ 1.3A	6.3V @ 1.2A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	COLUMBIA PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	3900Ω CT	6-8Ω CT	3E245						
T3	3500Ω	3-4Ω	3E246						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	COLUMBIA PART No.	QUAM PART No.	
SP1	12"	PM	3-4Ω	1E145	12A6A	
SP2	6"	PM	4-6Ω	1E146	6A3IZ5.4	
SP3	6"	PM	4-6Ω	1E146	6A3IZ5.4	

SPEAKER (cont)

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	COLUMBIA PART No.	QUAM PART No.	
SP4	12"	PM	3-4Ω	1E145	12A6A	
SP5	6"	PM	4-6Ω	1E146	6A3IZ5.4	
SP6	6"	PM	4-6Ω	1E146	6A3IZ5.4	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA							
	COLUMBIA PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		JENSEN PART No.		SONOTONE PART No.	
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE
M1	CD-SC-2D	13TB		26S	S1-1 S3-3			8TA4-S	N-8TA-S

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA		REMARKS
	COLUMBIA PART No.	JENSEN PART No.	
M2		CS-1X †	† Jewel

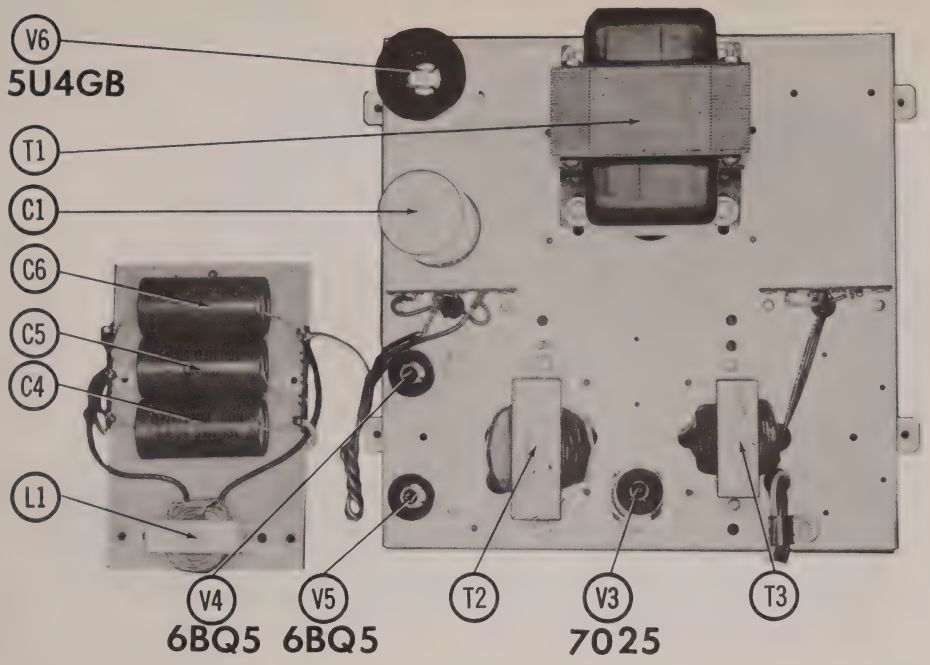
MISCELLANEOUS

ITEM No.	PART NAME	COLUMBIA PART No.	NOTES
M3	Switch	19E691	Function (Rotary Wafer Type, Includes on-off Switch)

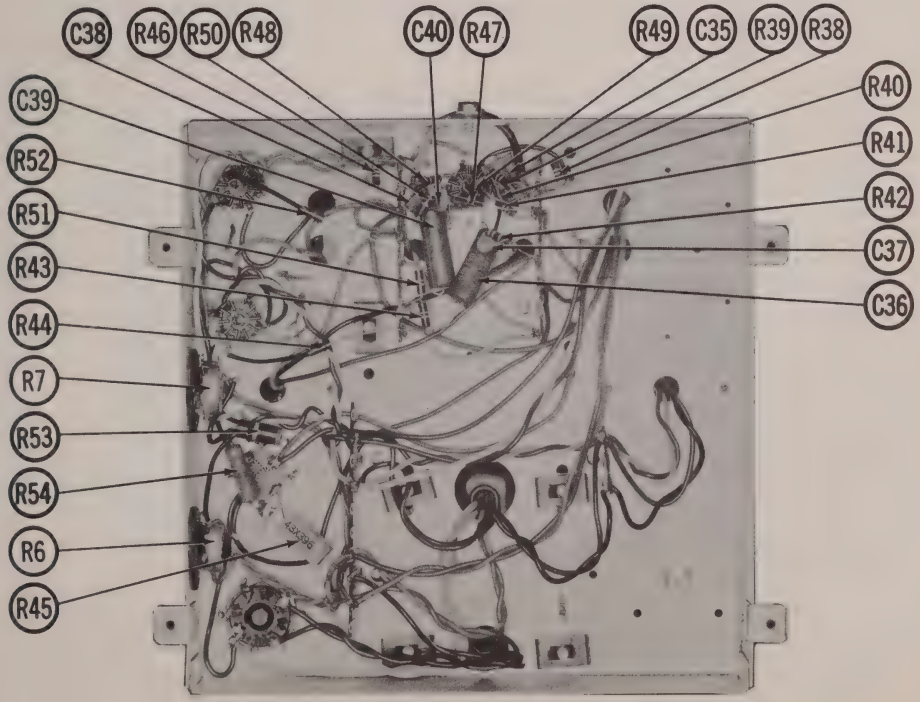
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	8E510	Level, Contour, Bass, Treble, Balance, Function Selector
Cabinet	17E845	Mahogany, Model C-1162M
Cabinet	17E846	Walnut, Model C-1162W



AMP CHASSIS – TOP VIEW

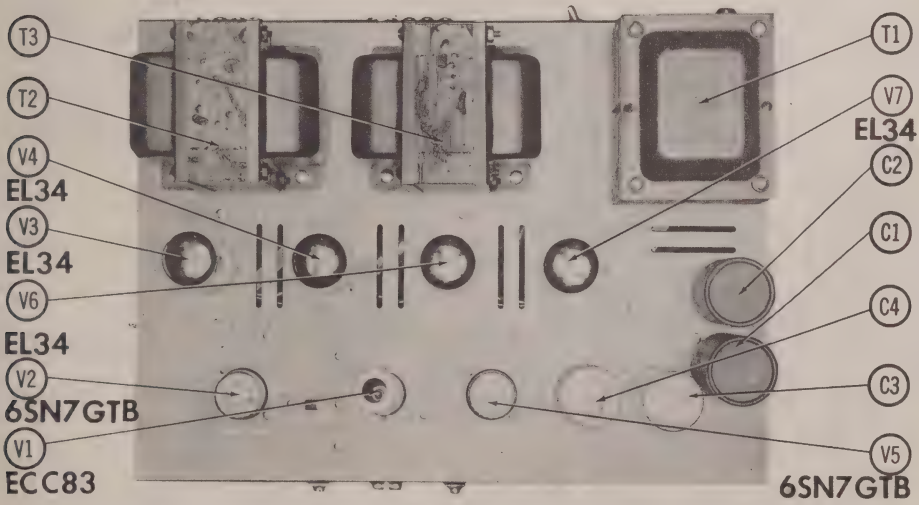


AMP CHASSIS – BOTTOM VIEW

PHOTOFACT® Folder

**EICO MODEL
HF-87**

TRADE NAME	Eico Model HF-87
MANUFACTURER	Electronic Instrument Co., Inc., 3300 Northern Blvd., Long Island City 1, N. Y.
TYPE SET	AC Operated 7 Tube Stereo Amplifier
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles RATING 215 Watts, 2.2 Amp. @ 117 Volts AC



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of JV955

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

EICO MODEL
HF-87

EICO MODEL
HF-87

SET 503 FOLDER 9

PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Channel 1 AF Amp. - Channel 2 AF Amp.	ECC83/12AX7 (7025) *	V4	Channel 1 Output	EL34/6CA7
V2	Channel 1 AF Amp. - Channel 1 Phase Inv.	6SN7GTB	V5	Channel 2 AF Amp. - Channel 2 Phase Inv.	6SN7GTB
V3	Channel 1 Output	EL34/6CA7	V6	Channel 2 Output	EL34/6CA7
			V7	Channel 2 Output	EL34/6CA7

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA EICO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	300	300	24013	AFHS1-43-80	B0286	FP141		TVL-1590	
C2	300	300	24013	AFHS1-43-80	B0286	FP141		TVL-1590	
C3	80	500	24014	AFH1-62	A0560	FP187	TMS-70	TVL-1958	
C4A	▲40	500	24008	AFH2-71-90	B0530	FP399, 5	TMD-62	TVL-2939	
B	▲20	500							
C5	25	6	23020	XPP-6025	NLW25-6	TT6X25	TD-25-25	TE-1091	
C6	25	6	23020	XPP-6025	NLW25-6	TT6X25	TD-25-25	TE-1091	
C7	50	50	23011	PRS1350	BR505	TC39	TD-50-50	TVA-1308	
C8	50	50	23011	PRS1350	BR505	TC39	TD-50-50	TVA-1308	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C9	.25 400V 10%		V84C4P25-10%		PM4P25	4DP-5-254	GEM-4025	4TM-P25
C10	.1 600V 10%		V84C6P1-10%		PM6P1	6DP-4-104	GEM-1001	6TM-P1
C11	.1 600V 10%		V84C6P1-10%		PM6P1	6DP-4-104	GEM-1001	6TM-P1
C12	470 10%		DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C13	225 10%		DI-220	DD-221	L10T22	CCD-221	GP320	10TS-T22
C14	.25 400V 10%		V84C4P25-10%		PM4P25	4DP-5-254	GEM-4025	4TM-P25
C15	.1 600V 10%		V84C6P1-10%		PM6P1	6DP-4-104	GEM-1001	6TM-P1
C16	.1 600V 10%		V84C6P1-10%		PM6P1	6DP-4-104	GEM-1001	6TM-P1
C17	470 10%		DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C18	225 10%		DI-220	DD-221	L10T22	CCD-221	GP320	10TS-T22
C19	.03 600V		P688N-03	DD-303	CUB6S3	6DP-3-303	GEM-613	6TM-S3

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA EICO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	18050	AB-60	A47-500K-Z	B13-133	U48	Level, Channel 1
B	Shaft			AK-1	FKS-1/4	SK2	Not Req.	
R2A	500K	½	18050	AB-60	A47-500K-Z	B13-133	U48	Level 2, Channel 2
B	Shaft			AK-1	FKS-1/4	SK2	Not Req.	

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

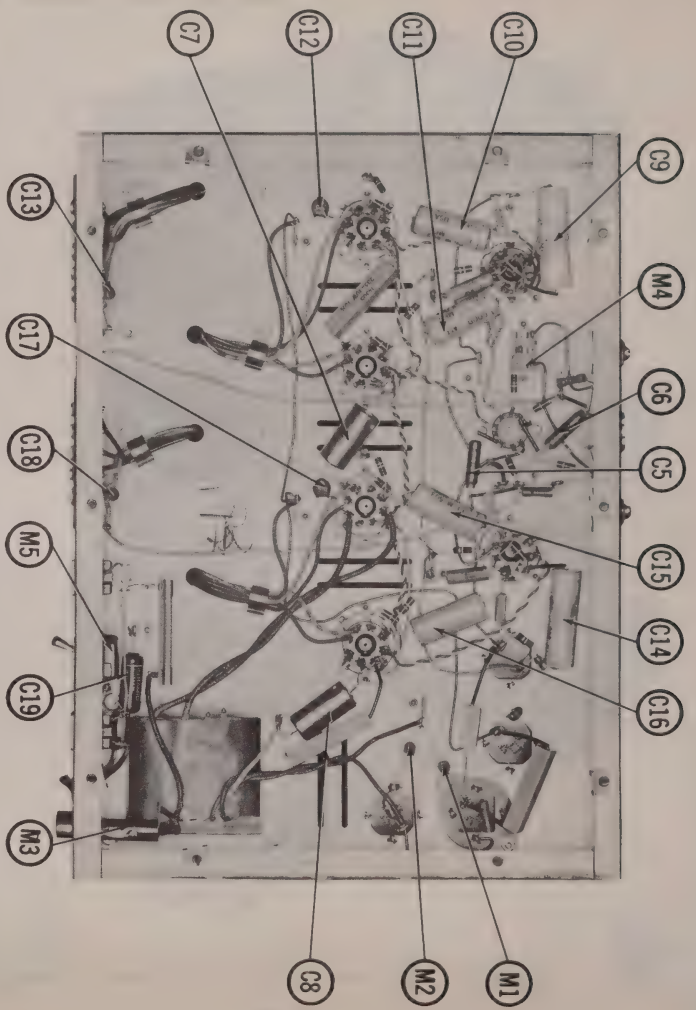
ITEM No.	RATING	REMARKS
R3	10K	
R4	100K	
R5	1000Ω	
R6	100Ω	
R7	7500Ω	
R8	1meg	
R9	28750Ω 1W	
R10	33K 1W	
R11	18K 1W	
R12	120K	
R13	1000Ω	
R14	120K	

ITEM No.	RATING	REMARKS
R15	1000Ω	
R16	235Ω 10W	#14305
R17	10K	
R18	100K	
R19	1000Ω	
R20	100Ω	
R21	7500Ω	
R22	1meg	
R23	28750Ω 1W	
R24	33K 1W	
R25	18K 1W	
R26	120K	

ITEM No.	RATING	REMARKS
R27	1000Ω	
R28	120K	
R29	1000Ω	
R30	235Ω 10W	IRC#PW10-235Ω
R31	120K	
R32	3000Ω 5W	IRC#PW5-3K
R33	50Ω 10W	IRC#PW10-50Ω
R34	100K	
R35	100K	
R36	110Ω Cold	#39001

Eico Part Number.

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA: EICO PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
	PRI.	SEC. 1	SEC. 2							
T1	117V@ 2.2A	170V@ .9A	6.3V@ 7.6A	S-30031①						
	SEC. 3	SEC. 4	SEC. 5							
	75V (Not Used)									

① Alternate Part #30031.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA: EICO PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
	PRI.	SEC.							
T2	6000Ω CT Tap@ 1200Ω CT	32ΩTap @ 16Ω, 8Ω, 4Ω	32019						
T3	6000Ω CT Tap@ 1200Ω CT	32ΩTap @ 16Ω, 8Ω, 4Ω	32019						

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA: EICO PART No.	ITT PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
	CURRENT (Measured)						
M1	.300A	93006	RE504	1N1764	F4	SR500	
M2	.300A	93006	RE504	1N1764	F4	SR500	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: EICO PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M3	3AG	5A 250V	91001	97800	312005 (3AG 5A 250V)	341001	MTH 5	HKP

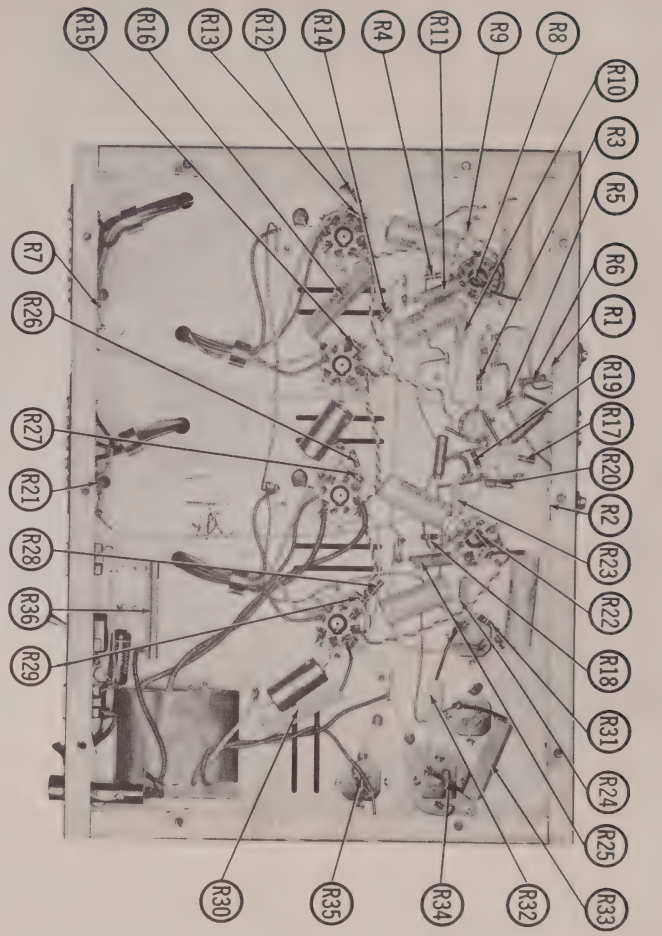
MISCELLANEOUS

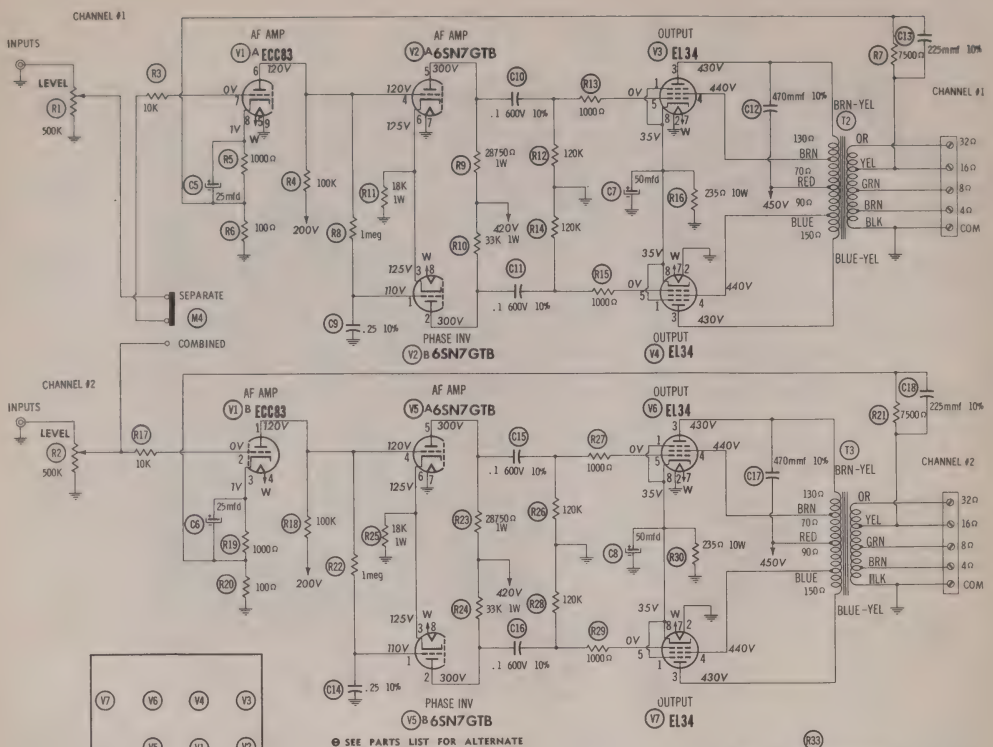
ITEM No.	PART NAME	EICO PART No.	NOTES
M4	Switch	62002	Separate-Combined (SPDT, Slide Type)
M5	Switch	61000	Off-On (Toggle)

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC83 12AX7	†220K	10K	1100Ω	.2Ω	.2Ω	†220K	10K	1100Ω	0Ω
V2	6SN7GTB	†1.2meg	†36K	18K	†220K	†32K	18K	0Ω	.2Ω	
V3	EL34 6CA7	235Ω	0Ω	†250Ω	†120Ω	120K	TP	.2Ω	235Ω	
V4	EL34 6CA7	235Ω	0Ω	†290Ω	†140Ω	120K	TP	.2Ω	235Ω	
V5	6SN7GTB	†1.2meg	†36K	18K	†220K	†32K	18K	0Ω	.2Ω	
V6	EL34 6CA7	235Ω	0Ω	†250Ω	†120Ω	120K	TP	.2Ω	235Ω	
V7	EL34 6CA7	235Ω	0Ω	†290Ω	†140Ω	120K	TP	.2Ω	235Ω	

† MEASURED FROM OUTPUT OF M1. TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

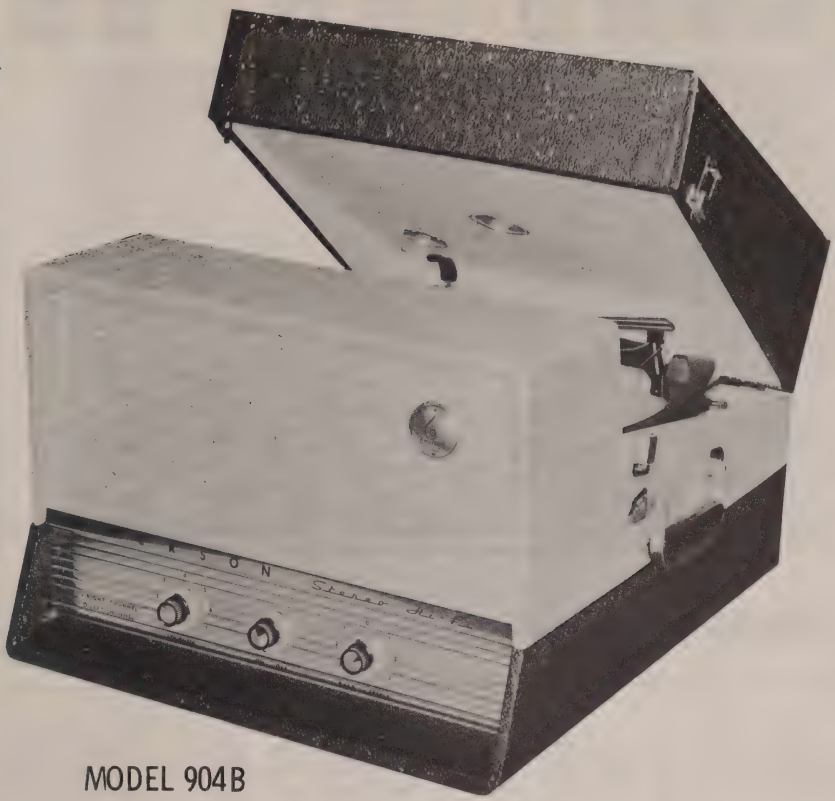
©Howard W. Sams & Co., Inc. 1960

EICO MODEL HF-87

PHOTOFACT® Folder with CIRCUITRACE®

EMERSON CHASSIS 120458B, 120462B, 120467B, 120471B, 120473B

EMERSON CHASSIS 120458B, 120462B, 120467B, 120471B, 120473B



MODEL 904B

EMERSON CHASSIS 120458B, 120462B, 120467B, 120471B, 120473B

TRADE NAME	Emerson Models 901D (Ch. 120467B), 903B (Ch. 120462B), 904B (Ch. 120458B), 905B (Ch. 120471B), 906B (Ch. 120473B) (Models 971 (A), 972, 973 Are External Speaker Cabinets for Models 903, 905, 906 Respectively)
MANUFACTURER	Emerson Radio & Phono Corp., 524 W. 23rd Street, New York 11, N. Y.
TYPE SET	AC Operated 3 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 — 120 Volts AC, 60 Cycles RATING 31 Watts, .35 Amp. @117 Volts AC (Less Motor)

MODELS 901D, 903B, RECORD CHANGER PART #819128. FOR SERVICE INFORMATION- SEE SIMILAR V-M 1201 — PHOTOFACT SET 436 FOLDER 18 OR RECORD CHANGER MANUAL RC-12

MODEL 904B, RECORD CHANGER PART #819132 AND MODEL 906B, RECORD CHANGER PART #819136. FOR SERVICE INFORMATION, SEE SIMILAR WEBCOR 170 — PHOTOFACT SET 447 FOLDER 13 OR RECORD CHANGER MANUAL RC-12.

MODEL 905B, RECORD CHANGER PART #819134. FOR SERVICE INFORMATION, SEE SIMILAR MONARCH UA8 — PHOTOFACT SET 381 FOLDER 11 OR RECORD CHANGER MANUAL RC-11

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

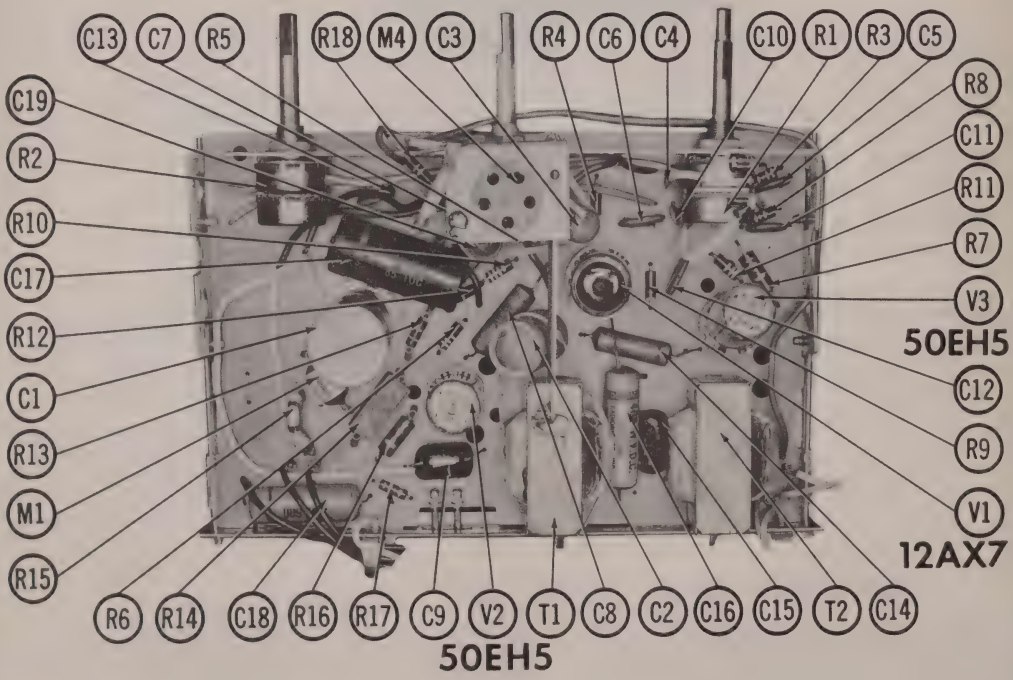
JT986

SET 503 FOLDER 10

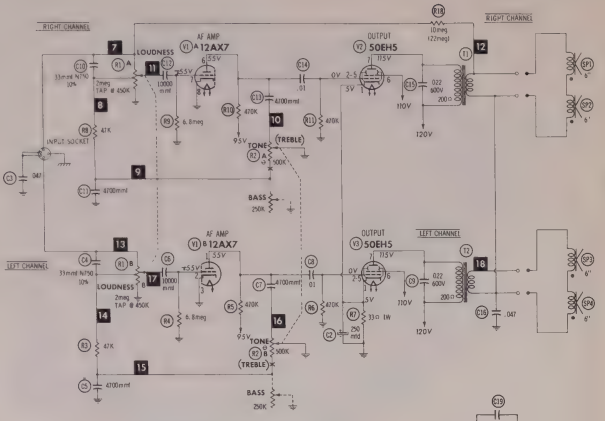
A Howard W. Sams CIRCUITRACE® Photo

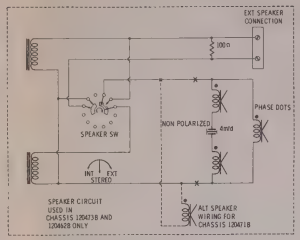
PRINTED BOARD

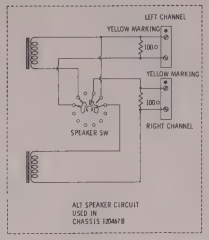
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



PRINTED BOARD-TOP VIEW




EXT SPEAKER CONNECTION
SPEAKER SW
NON POLARIZED
PHASE DOTS
INT - EXT STEREO
SPEAKER CIRCUIT USED IN CHASSIS 120473B AND 120462B ONLY
ALT SPKR WIRING FOR CHASSIS 120471B

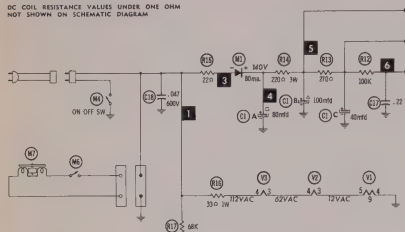


RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	1.510K	6.8meg	0Ω	0Ω	12Ω	1.510K	6.8meg	0Ω	6Ω
V2	50EH5	33Ω	470K	12Ω	62Ω	470K	1.490Ω	1.420Ω		
V3	50EH5	33Ω	470K	62Ω	112Ω	470K	1.490Ω	1.420Ω		

† MEASURED FROM OUTPUT OF ML

DENOTES B- DENOTES CONTROL BRACKET



⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±5% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

CIRCUITRACK

© Howard W. Sams & Co., Inc. 1960

EMERSON CHASSIS 120458B, 120462B, 120467B, 120471B, 120473B

PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC •			• RAYTHEON •		• SYLVANIA •
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Left Channel AF Amp. - Right Channel AF Amp.	12AX7	V2	Left Channel Output	50EH5
			V3	Right Channel Output	50EH5

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	EMERSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	■80	160	925470			WP227, 35 TC1265		PCLS-3447.2*	
B	▲100	160							
C	40	150							
C2	250	15	925461	PRS1210	BR2501	TC50025	TD-250-15	TVA-1161	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C4	33 N750 10%		N750-DI 33	DTN-33	C10Q33U	CCTN-330	CN7-333	10TCU-Q33
C5	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C6	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C7	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C8	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1
C9	.022 600V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C10	33 N750 10%		NPO-DI 33	DTN-33	C10Q33U	CCTN-330	CN7-433	10TCU-Q33
C11	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C12	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C13	4700		BPD-0047	DD-472	BYA10D47	CCD-472	B-247	5HK-D47
C14	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1
C15	.022 600V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C16	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C17	.22 400V		P488N-22		CUB4P22	4DP-5-224	GEM-4022	4TM-P22
C18	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C19	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	EMERSON PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	2meg 450K Tap	½	390583					Loudness, Left Channel
B	2meg 450K Tap	½						Loudness, Right Channel
R2A	500K	½	390589①	B-59	AD47-500K-S		FA55L	Tone, Left Channel
B	500K	½		SR-59	Not Req.		RU55L	Tone, Right Channel
C	Shaft			Not Req.	FS-3		CS3500	

① Chassis 120473B uses Part #390594.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R3	47K	
R4	6.8meg	
R5	470K	
R6	470K	
R7	33Ω 1W	
R8	47K	

ITEM No.	RATING	REMARKS
R9	6.8meg	
R10	470K	
R11	470K	
R12	100K	
R13	270Ω	
R14	220Ω 3W	IRC#PW3-220Ω

ITEM No.	RATING	REMARKS
R15	22Ω	
R16	33Ω 1W	
R17	68K	
R18	10meg	(22meg) *

* Chassis 120467B Only.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	EMERSON PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	3300Ω	6-8Ω	734181	A-2902①	AU-604①	A-2203①	24S06①	S-53X①	
T2	3300Ω	6-8Ω	734181	A-2902①	AU-604①	A-2203①	24S06①	S-53X①	

① Use Original Frame.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	EMERSON PART No.	QUAM PART No.	
SP1	6"	PM	3-4Ω	180197 *	6A15R	* Model 904-B
SP2	6"	PM	3-4Ω	180197 *	6A15R	♦ Model 905-B
SP3	6"	PM	3-4Ω	180197 *	6A15R	‡ Model 906-B, 903B
SP4	6"	PM	3-4Ω	180197 *	6A15R	
	4"x 6"	PM		180203 ♦		
	3½"	PM		180164A ‡		
	8"	PM		180165A ‡		

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	EMERSON PART No.	ITT PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.080A	817079 *	RE504 *	1N1763 *	2F4 *	SR200 *	*Silicon

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA							
	EMERSON PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		JENSEN PART No.		SONOTONE PART No.	
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE
M2	962326	13T		13		A-44X		10T2-S	

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA		REMARKS
	EMERSON PART No.	JENSEN PART No.	
M3	(Part of M2)	* A-44X † or * A-44XSD †♦ or * A-44XDD ♦	† Jewel ♦ Diamond * Includes Cartridge

MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
M4	Switch	510149	Power Off-On (Part of R2 in Ch. 120473B)
M5	Switch	962469	Stereo-Monaural (Chassis 120458B, 120473B)
	Switch	962471	Stereo-Monaural (Chassis 120462B)
	Switch	510158	Stereo-Monaural (Chassis 120471B)
M6	Switch	962700	Changer Off-On (Chassis 120458B, 120473B)
	Switch	510079	Changer On-Off (Chassis 120462B)
	Switch	962703	Changer On-Off (Chassis 120471B)
M7	Motor	583085	Turntable Drive

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	461074	Volume (Outer), Models 903B, 906B
Knob	461075	Volume (Inner), Models 903B, 906B
Knob	461093	Volume (Outer), Models 904B, 905B, 901D
Knob	461094	Volume (Inner), Models 904B, 905B, 901D
Knob	461076	Tone-On-Off, Models 903B, 906B
Knob	461095	Tone Models 904B, 903B, 901D
Knob	461108	On-Off Models 904B, 903B, 901D
Knob	460935	Speaker Selector, Models 903B, 906B
Knob	461114	Speaker Selector, Models 905B, 901D
Knob	962418	Reject, Models 904B, 906B
Knob	961842	Reject, On-Off, Models 901D, 903B
Knob	962509	Reject, On-Off, Model 905B
Knob	961842	Speed Control, Models 903B, 901D
Knob	962413	Speed Control, Models 904B, 906B
Knob	962510	Speed Control, Model 905B
Knob	461147	Mono-Stereo, Model 905B
Cabinet	141001	Mahogany, Model 903B
Cabinet	141001A	Limed Oak, Model 903B
Cabinet	141026	Mahogany, Model 906B
Cabinet	141026A	Limed Oak, Model 906B
Cabinet	141026B	Walnut, Model 906B
Cabinet	141002	Black Stardust, Ivory & Gold, Model 904B
Cabinet	141006	Midnight Blue & Ivory, Model 905B
Cabinet	141018	Mahogany, Model 901-D
Cabinet	140969	Speaker, Mahogany, Model 971A
Cabinet	140998	Speaker, Mahogany, Model 971
Cabinet	141014	Speaker, Mahogany, Model 973
Cabinet	141014A	Speaker, Limed Oak, Model 973
Cabinet	140969A	Speaker, Limed Oak, Model 971A
Cabinet	140998A	Speaker, Limed Oak, Model 971
Cabinet	141014B	Speaker, Walnut, Model 973
Cabinet	141011	Speaker, Ivory & Gold Stripe, Model 972
Legs	461048	Mahogany, Models 971, 971A, 903B
Legs	461048A	Limed Oak, Models 971, 971A, 903B
Apron & Leg Assy.	620333	Front, Mahogany, Models 973, 906B
Apron & Leg Assy.	620333A	Front, Limed Oak, Models 973, 906B
Apron & Leg Assy.	620333B	Front, Walnut, Models 973, 906B
Aprin& Leg Assy.	620330	Rear Mahogany, Models 973, 906B
Apron & Leg Assy.	620330A	Rear, Limed Oak, Models 973, 906B
Apron & Leg Assy.	620330B	Rear Walnut, Models 973, 906B

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

Low-Loss Shielded Lead (Interconnecting) ..... Use BELDEN No. 8401

Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder

**LAFAYETTE
MODEL LA-55**

LAFAYETTE
MODEL LA-55

LAFAYETTE
MODEL LA-55

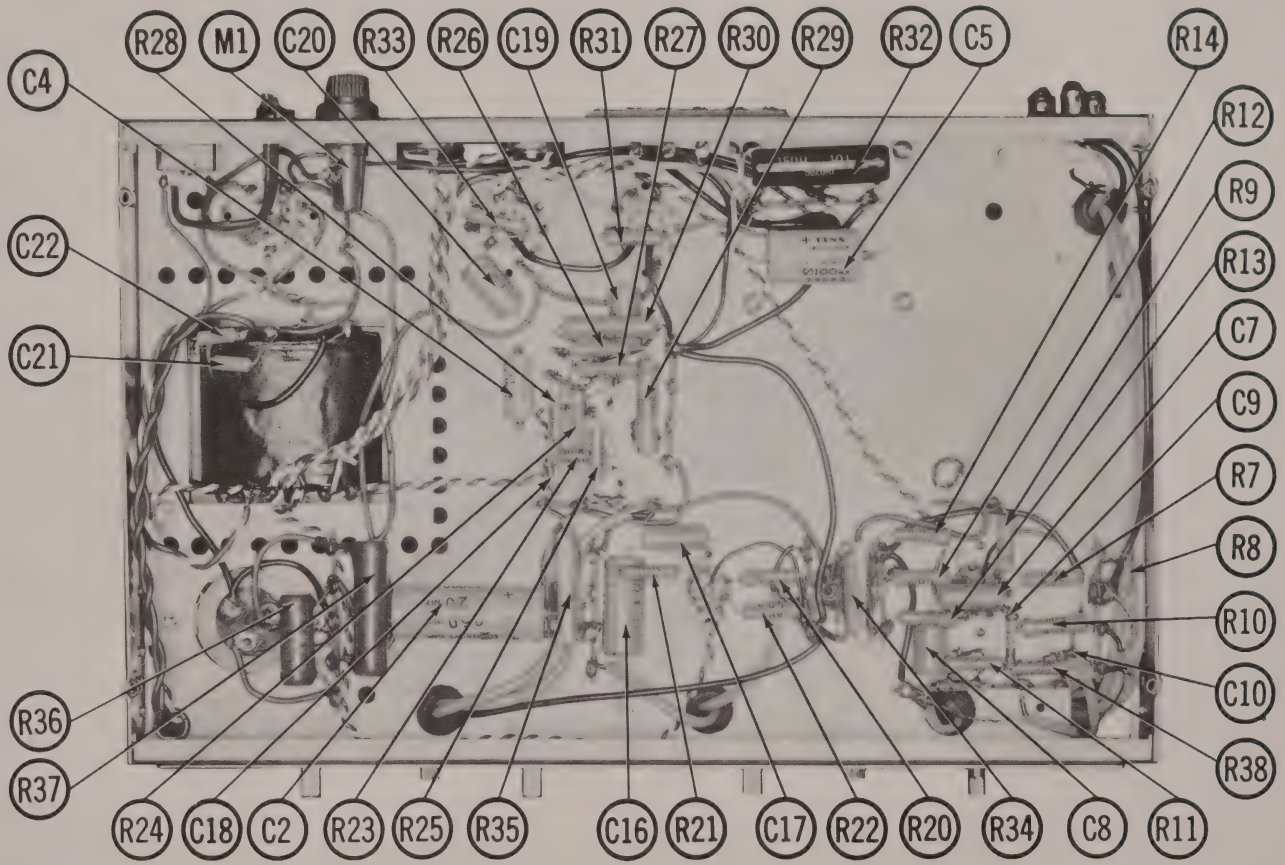
TRADE NAME	Lafayette Model LA-55
SUPPLIER	Lafayette Radio, 165-08 Liberty Ave., Jamaica 33, N. Y.
TYPE SET	AC Operated 6 Tube Audio Amplifier
POWER SUPPLY	110 — 120 Volts AC, 60 Cycles RATING 69 Watts, .65 Amp. @117 Volts AC

HOWARD W. SAMS CO., INC. Indianapolis 6, Indiana

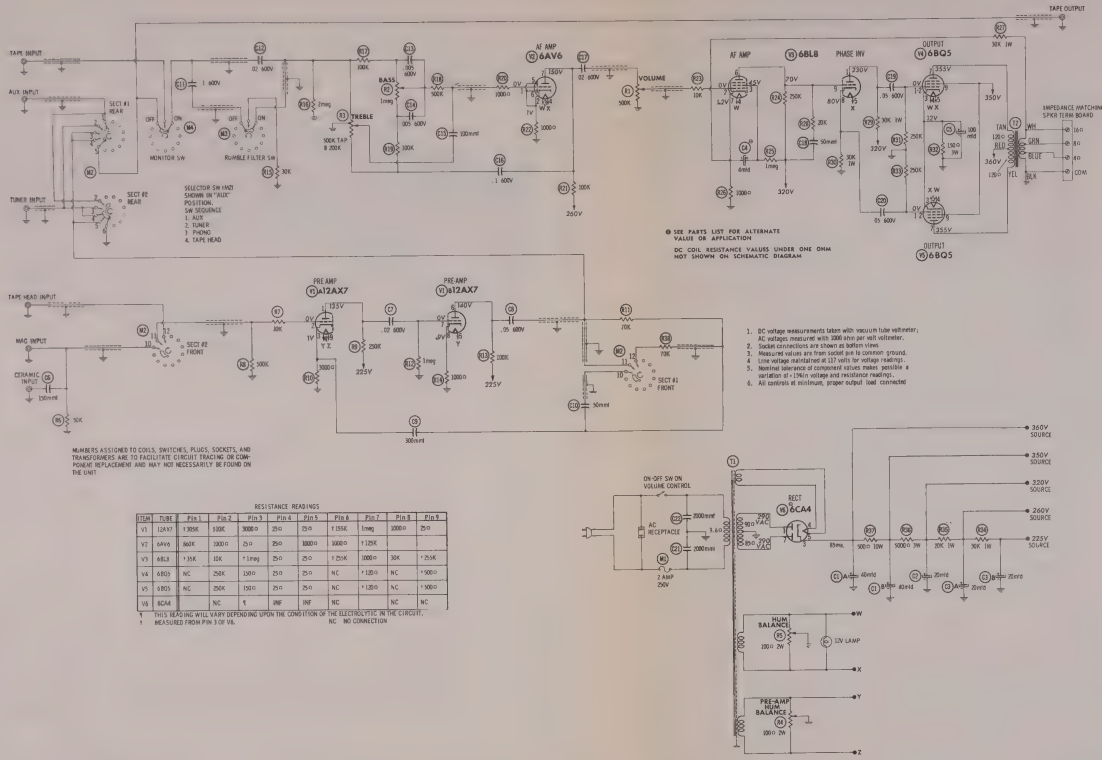
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KX018

SET 503 FOLDER 11



CHASSIS BOTTOM VIEW


TAPE OUTPUT
TAPE INPUT
AUX INPUT
TUNER INPUT
SECT #1 REAR
SECT #2 REAR
MONITOR SW
RUMBLE FILTER SW
SELECTOR SW MAY SHOWN IN "AUX" POSITION.
SW SEQUENCE
1. AUX
2. TUNER
3. PHONO
4. TAPE HEAD
BASS
TREBLE
AF AMP V2 6AV6
VOLUME
AF AMP V3 6BL8
PHASE INV
OUTPUT V4 6BQ5
OUTPUT V5 6BQ5
IMPEDANCE MATCHING SPKR TERM BOARD
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
TAPE HEAD INPUT
MAG INPUT
CERAMIC INPUT
SECT #2 FRONT
SECT #1 FRONT
PRE-AMP V1 6A12AX7
PRE-AMP V7 6A12AX7
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±10% in voltage and resistance readings.
6. All controls at minimum, proper output load connected
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT
ON-OFF SW ON VOLUME CONTROL
AC RECEPTACLE
2 AMP 250V
RECT V6 6CA4
360V SOURCE
350V SOURCE
320V SOURCE
260V SOURCE
225V SOURCE
HUM BALANCE
12V LAMP
PRE-AMP HUM BALANCE

RESISTANCE READINGS

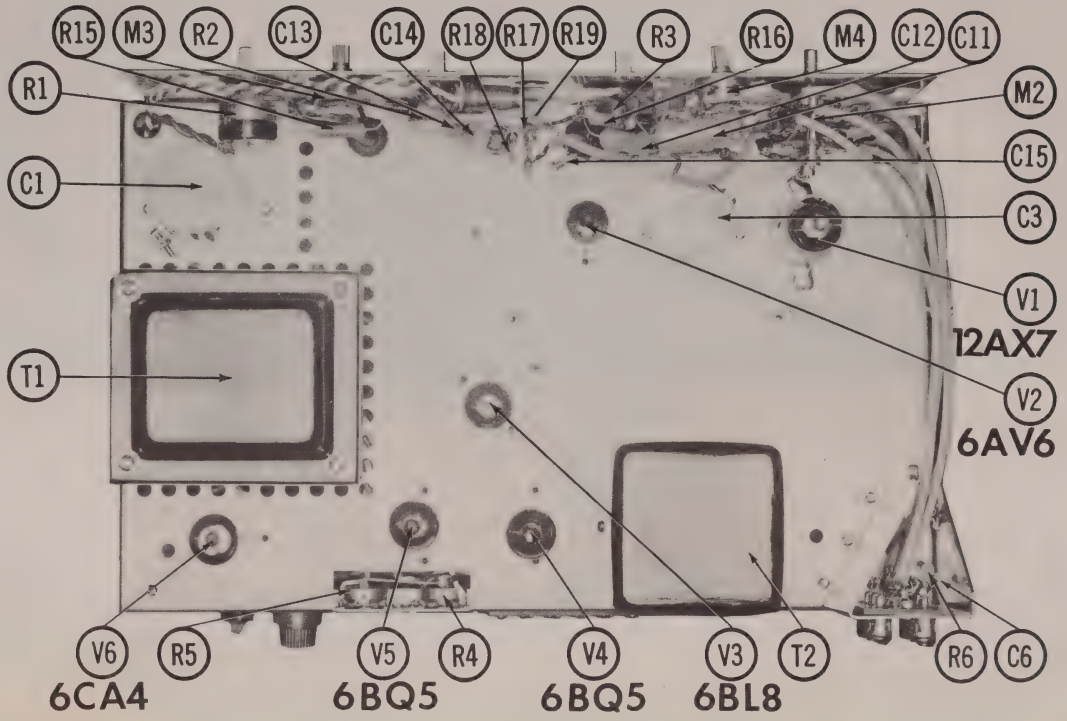
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†.305K	100K	300Ω	25Ω	25Ω	†.155K	1meg	100KΩ	25Ω
V2	6AV6	860K	100Ω	25Ω	25Ω	100Ω	100Ω	†.125K		
V3	6BL8	†.15K	10K	†1meg	25Ω	25Ω	†.25K	1000Ω	30K	†.25K
V4	6BQ5	NC	25K	150Ω	25Ω	25Ω	NC	†.135Ω	NC	†500Ω
V5	6BQ5	NC	25K	150Ω	25Ω	25Ω	NC	†.135Ω	NC	†500Ω
V6	6CA4		NC	¶	1MF	1MF	NC		NC	NC

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 3 OF V6. NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1960

LAFAYETTE MODEL LA-55



CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •)
V1	Preamplifier	12AX7
V2	AF Amplifier	6AV6
V3	AF Amp. -Phase Inv.	6BL8
V4	Output	6BQ5
V5	Output	6BQ5
V6	Rectifier	6CA4 (EZ81) *

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA LAFAYETTE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	40	400		AFH2-57	B0450	FP238	TMD-2480	TVL-2764	
B	40	400							
C2	20	350		PRS1735	BR2035	TC65	TD-20-350	TVA-1608	
C3A	20	350		AFH2-37	B0300	FP227	TMD-2375	TVL-2626	
B	20	350							
C4	4	150		PRS1400	BBR4-150	TT150X4	TD-4-150	TVA-1402	Note 1
C5	100	25		PRS1270	BBR100-25	TC2501	TD-100-25	TVA-1207	

Note 1. Some versions may use 10mfd in this application.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	150		SI 150	D6-151	L10T15	CCD-151	B-315	10TS-T15
C7	.02 600V		P688N-02	DD-203	CUB6S2	6DP-2-203	GEM-612	6TM-S2
C8	.05 600V		P688N-05	DD-503	CUB6S5	6DP-3-503	GEM-615	6TM-S5
C9	300		SI 300	D6-301	L10T30	CCD-301	GP330	10TS-T30
C10	50		SI 50	D6-500	L10Q50	CCD-500	GP450	10TS-Q50
C11	.1 600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P1
C12	.02 600V		P688N-02	DD-203	CUB6S2	6DP-2-203	GEM-612	6TM-S2
C13	.005 600V		P688N-005	D6-502	CUB6D5	6DP-1-502	GEM-625	6TM-D5
C14	.005 600V		P688N-005	D6-502	CUB6D5	6DP-1-502	GEM-625	6TM-D5
C15	100		SI 100	D6-101	L10T10	CCD-101	GP310	10TS-T10
C16	.1 600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P1
C17	.02 600V		P688N-02	DD-203	CUB6S2	6DP-2-203	GEM-612	6TM-S2
C18	50		SI 50	D6-500	L10Q50	CCD-500	GP450	10TS-Q50
C19	.05 600V		P688N-05	D6-503	CUB6S5	6DP-3-503	GEM-615	6TM-S5
C20	.05 600V		P688N-05	D6-503	CUB6S5	6DP-3-503	GEM-615	6TM-S5
C21	2000		SI 2000	D6-202	BYA10D2	CCD-202	B-220	5HK-D20
C22	2000		SI 2000	D6-202	BYA10D2	CCD-202	B-220	5HK-D20

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA LAFAYETTE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½		AB-60				Volume
B	Shaft			AK-29				
C	Switch			KR-3				Power Off-On
R2A	1meg	½		AB-69				Bass
B	Shaft			AK-29				
R3A	500K	½		ABT-65				Treble
	200K Tap							
B	Shaft			AK-29				
R4A	100Ω	2(WW)		WN-101	A43-100			Hum Balance, Preamp.
B	Shaft			Not Req.	FKS-1/4			
R5A	100Ω	2(WW)		WN-101	A43-100			Hum Balance
B	Shaft			Not Req.	FKS-1/4			

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R6	50K	
R7	10K	
R8	500K	
R9	250K	
R10	3000Ω	
R11	70K	
R12	1meg	
R13	100K	
R14	1000Ω	
R15	30K	
R16	2meg	

ITEM No.	RATING	REMARKS
R17	100K	
R18	500K	
R19	100K	
R20	1000Ω	
R21	100K	
R22	1000Ω	
R23	10K	
R24	250K	
R25	1meg	
R26	1000Ω	
R27	30K 1W	

ITEM No.	RATING	REMARKS
R28	20K	
R29	30K 1W	
R30	30K 1W	
R31	250K	
R32	150Ω 3W	IRC#PW3-150Ω
R33	250K	
R34	30K 1W	
R35	20K 1W	
R36	5000Ω 3W	IRC#PW3-5K
R37	500Ω 10W	IRC#PW10-500Ω
R38	70K	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA LAFAYETTE PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V@ .65A	580 VCT @.085A	6.3V@ .9A							
	SEC. 3	SEC. 4	SEC. 5							
	6.3V@ 2.4A	5V@ .25A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA LAFAYETTE PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	5800Ω CT	16Ω Tap @8Ω, 4Ω							

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA LAFAYETTE PART No. FUSE	LAFAYETTE PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3A	2A 250V			312002 (3AG 2A 250V)	342001	AGC 2	HKP

MISCELLANEOUS

ITEM No.	PART NAME	LAFAYETTE PART No.	NOTES
M2	Switch		Function Selector (Rotary Wafer)
M3	Switch		Rumble Filter (Rotary Wafer)
M4	Switch		Monitor (Rotary Wafer)

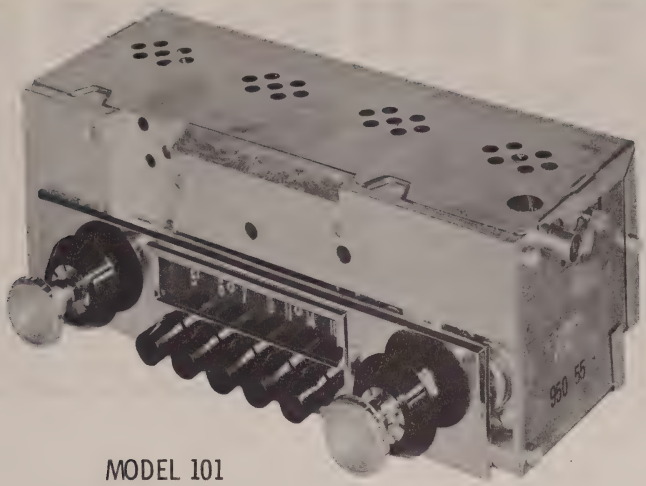
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder with CIRCUITRACE®

**MOPAR MODELS
101, 104, 110**



MODEL 101

TRADE NAME	Mopar Models 101 (For PP1, PP2 1960 Plymouths), 104 (For 1960 Valiants), 110 (Export Version of Model 101)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	Battery Operated 3 Tube, 2 Transistor Custom Built Automobile AM Receiver
POWER SUPPLY	12 Volt Storage Battery RATING 1.2 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540 — 1610KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1 thru A4..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A5, A6..... GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537
A8, A9, A10... GENERAL CEMENT #8271, 8279, 8897, 9050-L, 9150
WALSCO #2521, 2524

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to antenna receptacle.	262.5KC (400~ Mod.)	High end stop.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Thru dummy (Fig. 1) to antenna receptacle.	1610KC	"	"	A5, A6, A7	"
	Step 3 is not necessary unless tuner has been tampered with or associated components have been replaced. If necessary, back tuning cores out of coil. Repeat Steps 2.					
3.	Thru dummy to antenna receptacle.	1020KC	Tuner carriage 3/8" from high end stop.	Across voice coil.	A8, A9, A10	Adjust for maximum output. Repeat Steps 2 and 3.
4.	With radio installed in car and antenna fully extended, tune in a weak station near 1000KC and adjust A7 for maximum output.					

PUSHBUTTON ADJUSTMENT

1. Pull pushbutton out.
2. Tune manually to desired station.
3. Press pushbutton in firmly.
4. Repeat for remaining pushbuttons.

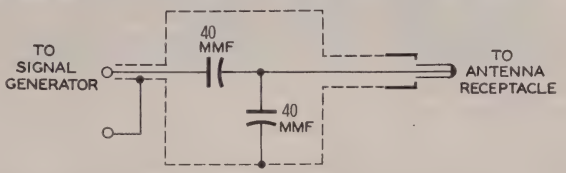


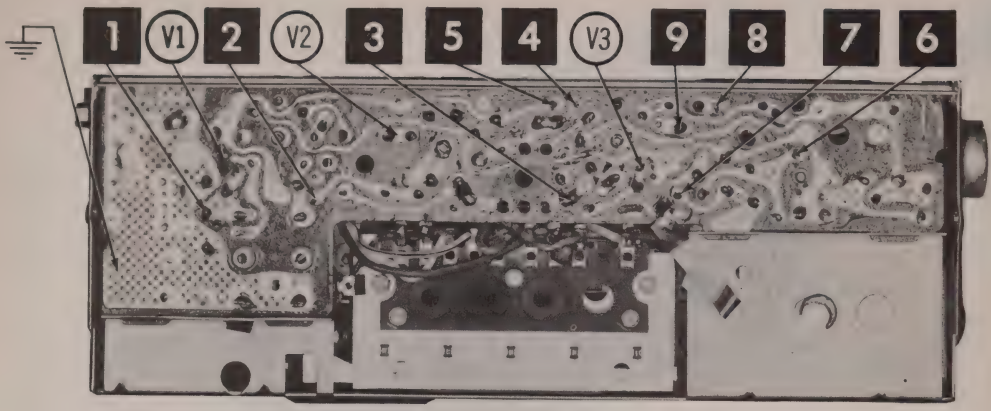
FIG. 1

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KD062

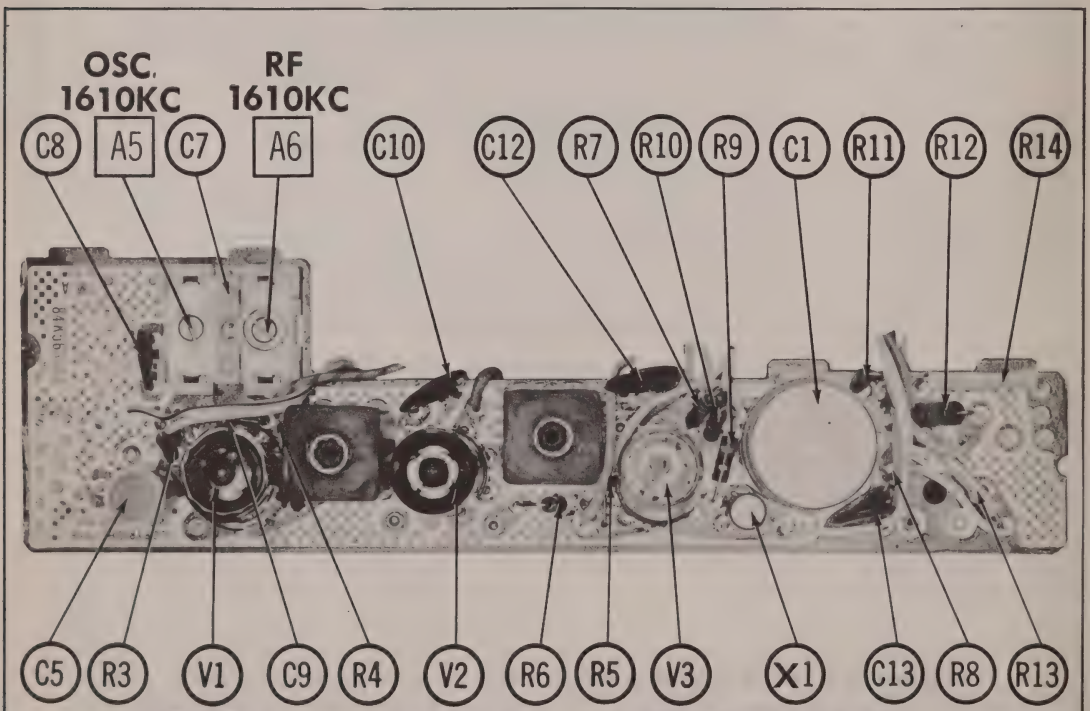
MOPAR MODELS
101, 104, 110
MOPAR MODELS
101, 104, 110
SET 503 FOLDER 12



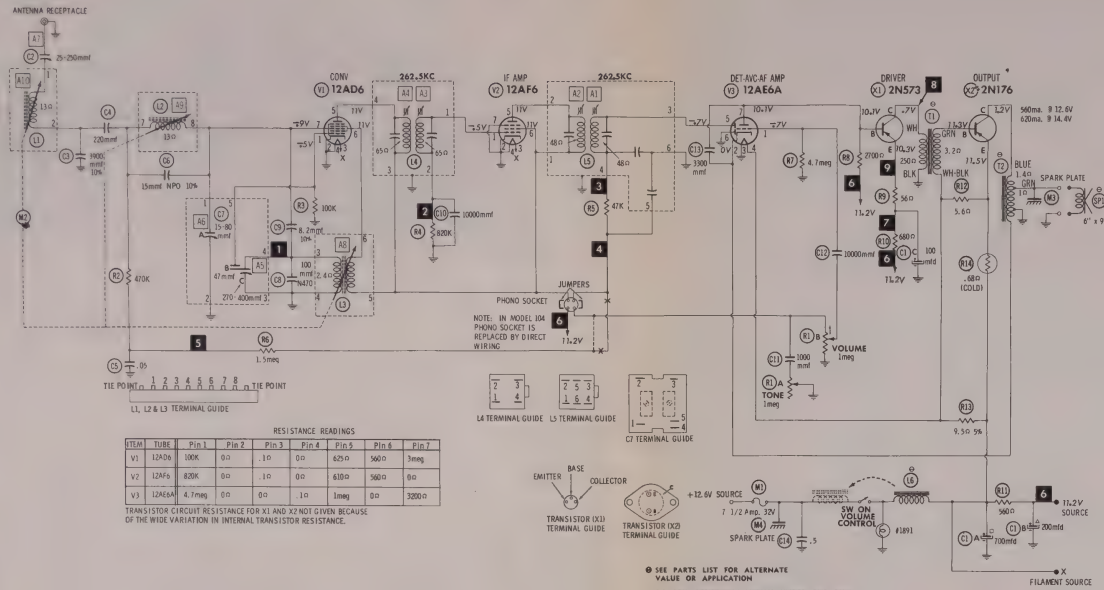
A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



PRINTED BOARD



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12AD6	100K	0Ω	.1Ω	0Ω	625Ω	560Ω	3meg
V2	12AF6	820K	0Ω	.1Ω	0Ω	610Ω	560Ω	0Ω
V3	12AE6A	4.7meg	0Ω	0Ω	.1Ω	1meg	0Ω	3200Ω

TRANSISTOR CIRCUIT RESISTANCE FOR X1 AND X2 NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

© Howard W. Sams & Co., Inc. 1960

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

MOPAR MODELS 101, 104, 110

PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire	Use BELDEN No. 8885
Bonding Strap	Use BELDEN No. 8661

TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆

ITEM No.	USE	TYPE
V1	Converter	12AD6
V2	IF Amplifier	12AF6
V3	Det.-AVC-AF Amp.	12AE6A

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N573	Driver			2N573	2N573	PNP
X2	2N176	Output	2N235A			2N176	PNP Note 1

Note 1. Some versions may use type MN-29. Use type 2N176 for replacement. When replacing, apply DC-4 grease (Part #1M490487) or equivalent to both sides of insulator. Tighten mounting screws securely.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■700	16	23C563447	AFH3-00-95.5		WP200.18			
B	▲200	16				TC2501			
C	100	16							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	25-250	#20B563246				464		
C3	3900 10%		DI-4000		DPMS-D39	CCD-392	JL-239	10TS-D39
C4	220		DI-220	DD-221	L10T22	CCD-221	B-322	10TS-T22
C5	.05 200V		P2151N-047	DD-503	BC2S47J	4DP-3-503	GEM-415	2TM-S5
C6	15 NPO 10%		NPO-DI 15	DTZ-15	C10Q15C	CCTO-150	CNO-415	10TCC-Q15
C7A	15-80							
B	47	#20B563378	NPO-DI 47	DTZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q15
C	270-400							

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C8	100 N470 5%	#21R129649				*		
C9	8.2 10%		NPO-SI 8.2		C10V82C			10TCC-V82
C10	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C11	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C12	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C13	3300		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C14	.5 100V		P288N-5		CUB2P5	2DP-5-504	GEM-205	2TM-P5

Motorola Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	1meg	1/2	18B563140					Tone
B	1meg							Volume
C	Switch							Power Off-On

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	470K	
R3	100K	
R4	820K	
R5	47K	
R6	1.5meg	

ITEM No.	RATING	REMARKS
R7	4.7meg	
R8	2700Ω	
R9	56Ω	
R10	680Ω	
R11	560Ω	

ITEM No.	RATING	REMARKS
R12	5.6Ω	#17K739323
R13	9.5Ω 5%	#17K563757
R14	.68Ω Cold	#17K563756

Motorola Part Number.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		* MOTOROLA PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Ant. Coil	24B563290 *				
L2	RF Coil	24B563290 *				
L3	Osc. Coil	24B563293 *				
L4	Input IF Trans.	24K563464	BC-344	12-PH1		
L5	Output IF Trans.	24K563457	BC-346	13-PH6		

* Part of tuning coil and mounting plate assembly Part #1V563269.

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ~)	MOTOROLA PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
L6	1A	.2Ω	.0048 HY	25C563445-B ①						

① Alternate Part #25C563445.

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	10	1	25C563444-B ①					

① Alternate Part #25C563444.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA						NOTES
	PRI.	MOTOROLA PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6Ω Taps ⓐ 3-4Ω, .1Ω DC Res.	25K563399-G ①						

① Alternate Part #25K563399.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	6"x 9"	PM	3-4Ω	50K563103 *	69A3	* Models 101, 110
	6"x 9"	PM	3-4Ω	50D563102 ♦		♦ Model 104

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MOTOROLA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	SFE	7½A 32V	65R122346	9K563327	30707.5 (SFE 7½A 32V)	155009	SFE 7½	HRH

MISCELLANEOUS

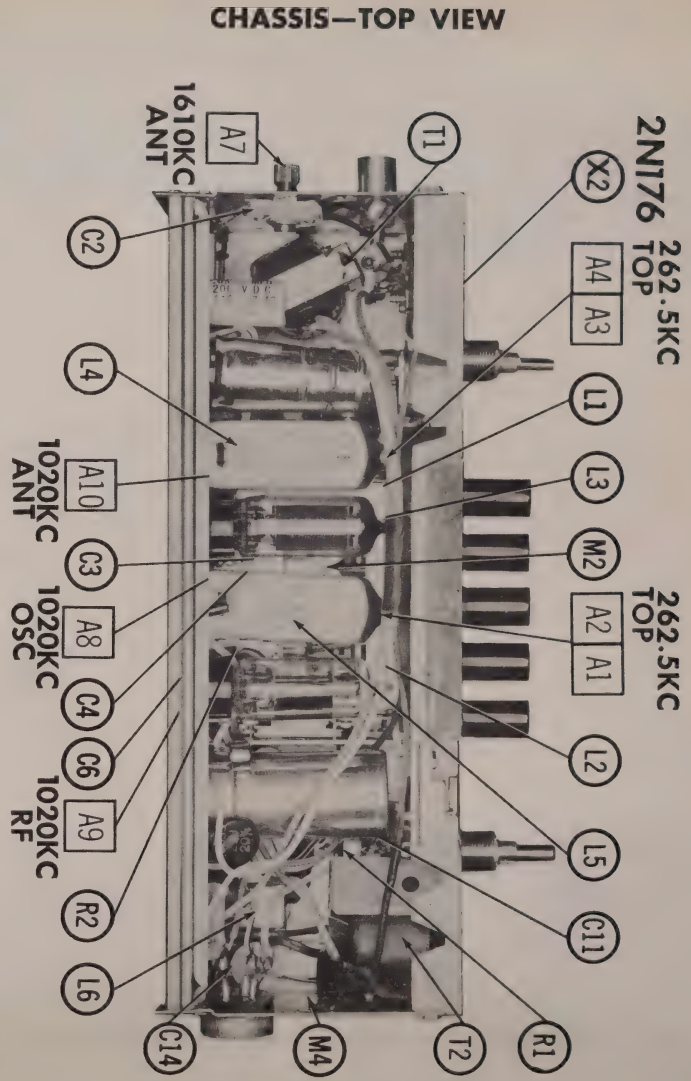
ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M2	Tuner	77D562846	Pushbutton Type (AT-291)
M3	Spark Plate	64K530177	
M4	Spark Plate	64K530177	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

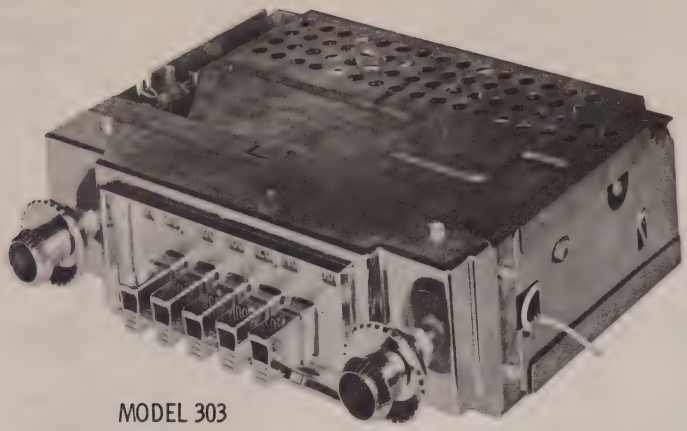
NAME	PART NO.	DESCRIPTION
Dial Scale	34K563389	Model 101
Dial Scale	34K563391	Model 110
Dial Scale	34K564094	Model 104
Dial Crystal	61A563192	
Pointer	1K563183	Includes Stud
Knob	36C564099	Tuning & Volume, Model 104
Knob	36B562625	Tuning & Volume, Model 101, 110
Knob	36C564098	Tone & Dummy, Model 104
Knob	36B562639	Tone & Dummy, Model 101, 110
Pushbutton	38B563207	Five Used

CHASSIS—TOP VIEW



PHOTOFACT® Folder with CIRCUITRACE®

MOPAR MODELS
303, 304, 305



MODEL 303

TRADE NAME	Mopar Models 303 (03BC) for 1960 Chryslers, 304 (03BS) for 1960 DeSotos, 305 (03BD) for 1960 Dodges
MANUFACTURER	Bendix Radio Div., Bendix Aviation Corp., Baltimore 4, Maryland
TYPE SET	Battery Operated 3 Tube, 3 Transistor Custom Built Automobile AM Receiver
POWER SUPPLY	12 Volt Storage Battery
TUNING RANGE	BROADCAST 530 - 1605KC RATING .7 Amp. @ 12.6 Volts DC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3, A4 ..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A5, A6 ..... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO 2512, 2525, 2528
A8, A9, A10 ..... GENERAL CEMENT #9050-L, 9150
WALSCO #2521, 2524

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 9 (grid) of Converter. Low side to chassis.	262.5 KC (400∿ Mod.)	High frequency end stop	DC probe to point (A). Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	Thru dummy (Fig.1) to antenna receptacle.	1605KC	"	"	A5, A6, A7	"
	Step 3 is not necessary unless tuner has been tampered with or associated components have been replaced. If necessary, back tuning cores (A8, A9, A10) out of coils. Repeat step 2.					
3.	Thru dummy to antenna receptacle.	1000KC	Tuner carriage .5" in from high end stop	DC probe to point (A). Common to chassis.	A8, A9, A10	Adjust for maximum deflection. Repeat steps 2 and 3.
4.	With radio installed in car and antenna fully extended, tune in a weak station near 1000KC and adjust A7 for maximum output.					

PUSHBUTTON ADJUSTMENT

1. Pull pushbutton out.
2. Tune manually to desired station.
3. Press pushbutton in firmly.
4. Repeat for remaining pushbuttons.

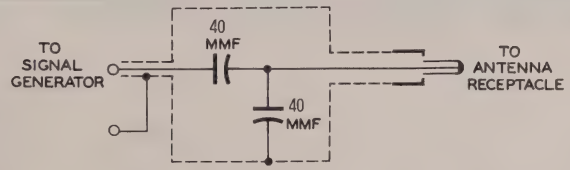


FIG. 1

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

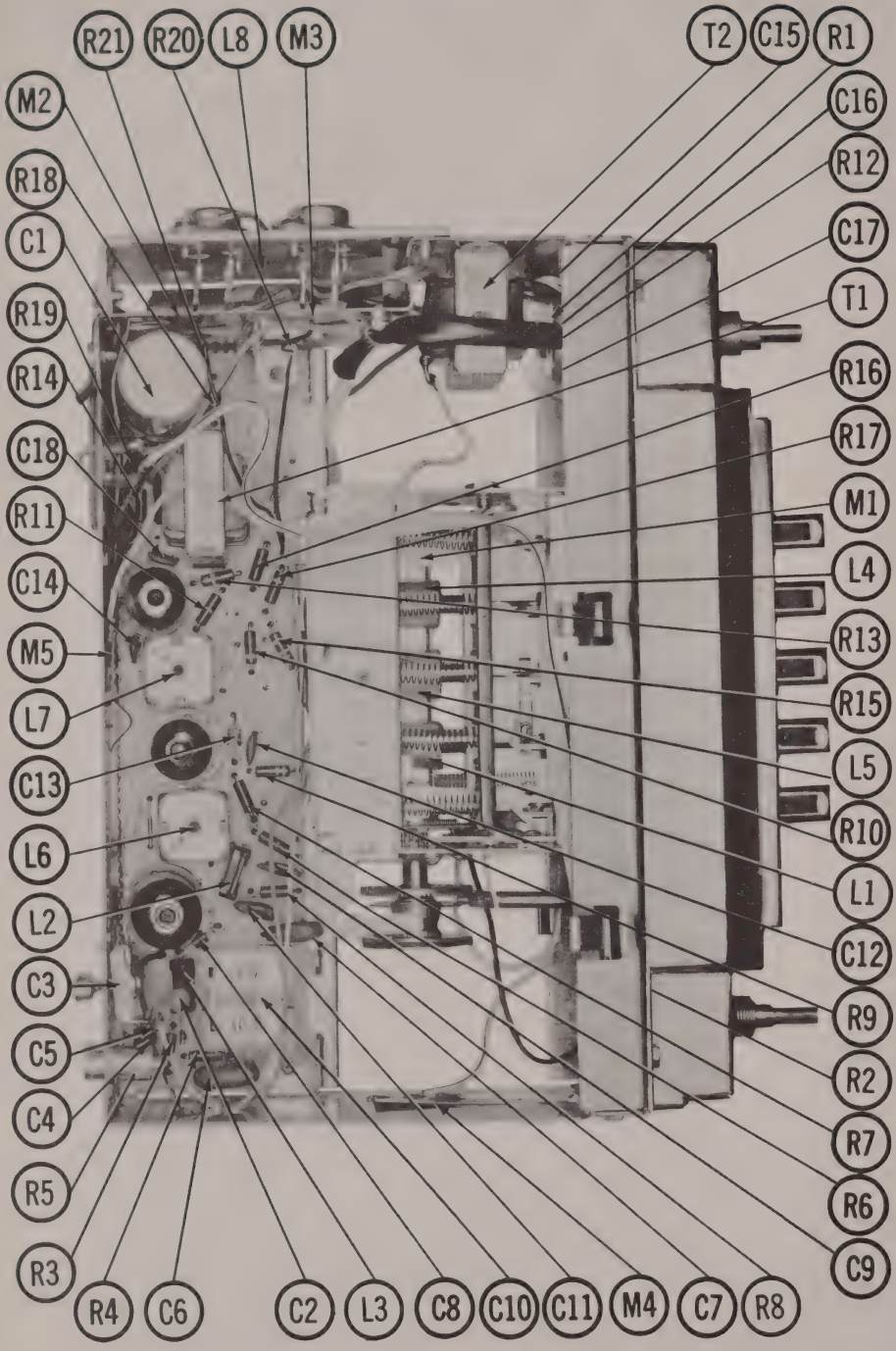
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KL080

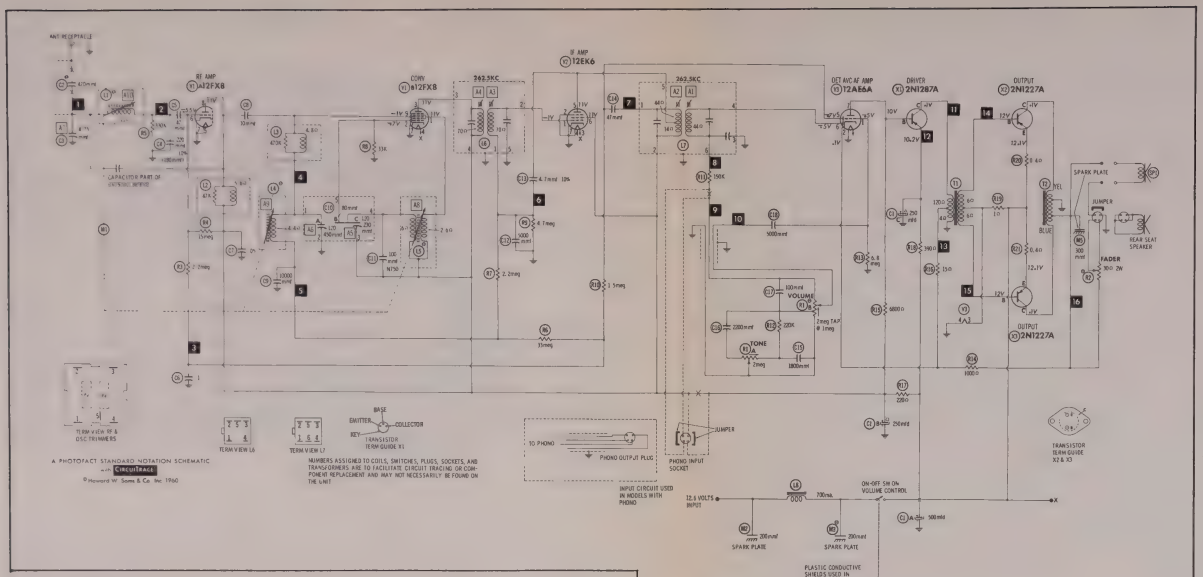
MOPAR MODELS
303, 304, 305

MOPAR MODELS
303, 304, 305

SET 503 FOLDER 13



CHASSIS TOP VIEW-COMPONENT IDENT.



A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

©Howard W. Sams & Co. Inc. 1960

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT

❶ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

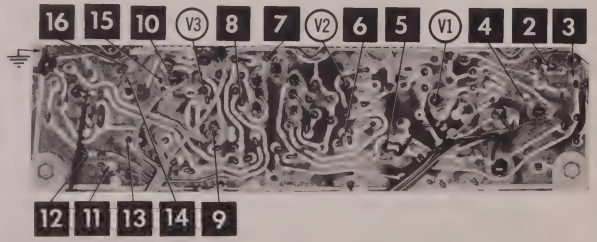
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12FXB	220Ω	31K	290Ω	.2Ω	0Ω	13meg	0Ω	225Ω	7.2meg
V2	12BK6	5.4meg	0Ω	.2Ω	0Ω	225Ω	220Ω	0Ω		
V3	12EAA	6.8meg	190Ω	.5Ω	0Ω	13meg	1.9meg	700Ω		

TRANSISTOR CIRCUIT RESISTANCE FOR X1, X2 AND X3 NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections shown as bottom views.
3. All current values are from socket pin to common ground.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



A Howard W. Sams CIRCUITRACE Photo

PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

MOPAR MODELS 303, 304, 305

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
	◆ GENERAL ELECTRIC ◆			RAYTHEON ◆ SYLVANIA ◆	
V1	RF Amp. - Converter	12FX8	V3	Det. - AVC - AF Amp.	12AE6A
V2	IF Amplifier	12EK6			

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N1287A	Driver			2N362		PNP
X2	2N1227A*	Output	2N1227				PNP } Matched
X3	2N1227A*	Output	2N1227				PNP } Pair

* When replacing, apply silicone grease to both sides of insulator. Tighten mounting screws securely.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	BENDIX PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	500	16	220353-13	AFH3-00-94		PWP300.4		PCLS-3026.6*	
B	■250	16							
C	▲250	16							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	470	Note 1	BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C3	4-75	#219083-1				462		
C4	220 10%	(180) †	1469-00022	TCZ-220	22R5T22	CM-19B-221K	CNO-322	MS-322
C5	47		BPD-000047	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C6	.1 100V		P288N-1	DF-104	CUB2P1	1DP-2-104	GEM-401	2TM-P1
C7	.05 100V		P288N-05	DD-503	CUB2S5	1DP-2-503	GEM-415	2TM-S5
C8	10		NPO-SI 10	TCZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C9	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C10A	120-450							
B	80	#219092-11	NPO-DI 82	TCZ-82	C10Q82C	CCTO-820	CNO-482	10TCC-Q82
C	120-230							
C11	100 N750		N750-DI 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C12	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C13	4.7 10%		NPO-SI 4.7	TCZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C14	47		BPD-000047	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C15	1800		DI-1800	DD-182	L10D18	CCS-182	B-218	10TS-D18
C16	2200		BPD-0022	DD-222	BYA10D22	CCD-222	B-222	5HK-D22
C17	100		BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C18	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50

Note 1. Not used in some versions. #Bendix Part Number. † Alternate Value.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	BENDIX PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	2meg	½	2090887-3	F1-67				Tone Note 1
B	2meg	½		R2-75				Volume
	1meg Tap					† QJ-1351A	■	
C	Bushing			AK-28				
D	Switch			KR-7				Power Off-On Note 2
R2	30Ω	2(WW)	2090627-3					Speaker Fader

Note 1. Some versions may use Part #2090887-4. Model 304 & 305 use Part #2090405-4.
Note 2. Models 304 & 305 use Part #2091087-1.
† "CONCENTRIKIT" Equivalent: K-8 Kit with Base Elements and Shafts: B11-139, P14-019 (Panel)
B18-139X, R1-100 (Rear)
76-2 (Switch)
S35 (Bushing)
■ "STA-LOC" Equivalent: FF26L, RU26T16, OS625, IS1125, US42.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R3	2.2meg	
R4	15meg	
R5	330K	
R6	33meg	
R7	2.2meg	
R8	33K	
R9	4.7meg	

ITEM No.	RATING	REMARKS
R10	1.5meg	
R11	150K	
R12	220K	
R13	6.8meg	
R14	1000Ω	
R15	6800Ω	
R16	15Ω	

ITEM No.	RATING	REMARKS
R17	220Ω	
R18	390Ω	
R19	1Ω	#2090438-18
R20	0.4Ω	#2091149-5
R21	0.4Ω	#2091149-5

Bendix Part Number. Length of Resistance Wire (R19, 11 1/4"; R20 or R21, 4 1/2").

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		BENDIX PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Ant. Coil	†				
L2	RF Choke	2090088-1 ①				
L3	Image Trap	2090088-8 ②	TV-193 *	6110 *		65uh
L4	RF Coil	†				
L5	Osc. Coil	†				
L6	Input IF Trans.	2090876-3				
L7	Output IF Trans.	2090877-4				

† Part of Tuner Coil Assembly (Part #2090131-17). ① Includes 47K Resistor. ② Includes 470K Resistor.
* Parallel with 470K resistor.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ∿)	BENDIX PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
L8	.7A	.3Ω	.0015 Hy.	2090889-3						

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	BENDIX PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2.1 Tap ⓐ .8Ω	1	290433-5					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA						NOTES
	PRI.	BENDIX PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	16Ω CT Tap ⓐ 3-4Ω	2090266-6			TA-12			

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	BENDIX PART No.	QUAM PART No.	
SP1	6" x 9"	PM	3-4Ω	2091269-2	69A3	

MISCELLANEOUS

ITEM No.	PART NAME	BENDIX PART No.	NOTES
M1	Tuner	2090959-4	Complete (Includes Pushbuttons) Model 303
	Tuner	2091083-3	Complete (Includes Pushbuttons) Models 304, 305
M2	Spark Plate	220267-17	200mmf
M3	Spark Plate	220267-17	200mmf (Model 303)
	Spark Plate	220267-18	280mmf (Models 304, 305)
M4	Spark Plate	220267-12	300mmf (Model 303)
	Spark Plate	220267-17	200mmf (Models 304, 305)
M5	Spark Plate	220267-12	300mmf
	Printed Board	2091104-1	Complete, Less Tubes, Model 303
	Printed Board	2091104-2	Complete, Less Tubes, Model 305
	Printed Board	2091104-3	Complete, Less Tubes, Model 304

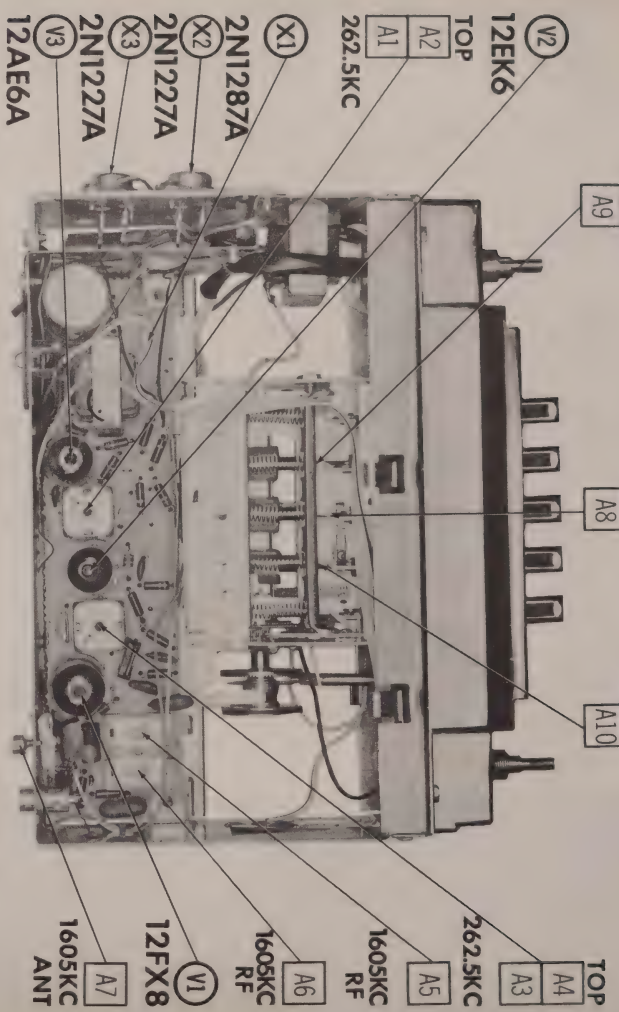
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire ..... Use BELDEN No. 8885
Bonding Strap ..... Use BELDEN No. 8661

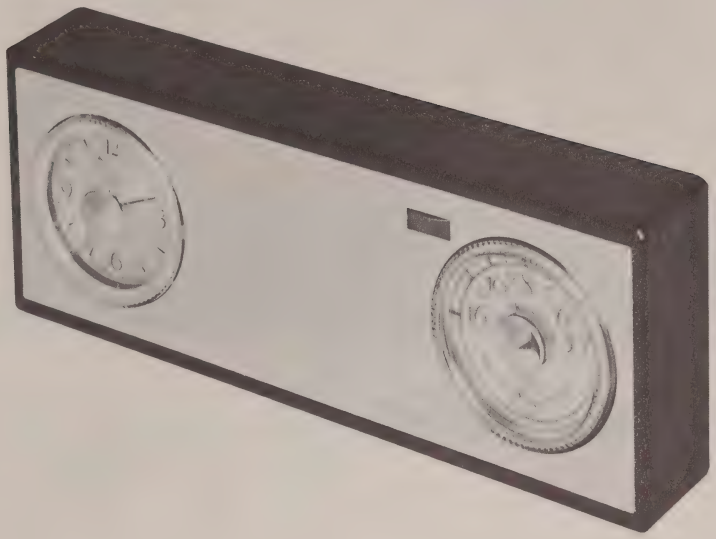
CHASSIS—TOP VIEW



PHOTOFACT® Folder

NORELCO
MODEL L2X97T

NORELCO
MODEL L2X97T



NORELCO
MODEL L2X97T

TRADE NAME	Norelco Model L2X97T
SUPPLIER	North American Phillips Co., Inc., 230 Duffy Ave., Hicksville, N. Y.
TYPE SET	Battery Operated Transistorized AM Receiver with Clock
POWER SUPPLY	6 Volts DC
RATING	9MA @ 6 Volts DC (No Signal, Min. Volume)
TUNING RANGE	BROADCAST 512-1630KC
	15MA @ 6 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A5, A7 ... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	452KC (400~ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	512KC	Tuning gang fully closed	"	A4	"
3.	"	1630KC	Tuning gang fully open	"	A5	Adjust for maximum output. Repeat steps 2 and 3.
4.	"	600KC	600KC signal	"	A6	Adjust for maximum output.
5.	"	1500KC	1500KC signal	"	A7	Adjust for maximum output. Repeat steps 4 and 5.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KF054

SET 503 FOLDER 14

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	OC44	Converter				2N412	PNP
X2	OC45	1st IF Amplifier				2N410	PNP
X3	OC45	2nd IF Amplifier				2N410	PNP
X4	OC71	AF Amplifier		2N406		2N406	PNP
X5	OC71	Driver		2N406		2N406	PNP
X6	OC72	Output		2N408		2N408	PNP } Matched
X7	OC72	Output		2N408		2N408	PNP } Pair

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	NORELCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	25	6	909/A25	XPP-6025	NLW25-6	TT6X25	ML30-6	TE-1091	
C2	8	6	AC5711/8	XPP-6008	NLW8-6	TT6X8	ML8-6	TE-1086	
C3	8	6	AC5711/8	XPP-6008	NLW8-6	TT6X8	ML8-6	TE-1086	
C4	8	6	AC5711/8	XPP-6008	NLW8-6	TT6X8	ML8-6	TE-1086	
C5	8	6	AC5711/8	XPP-6008	NLW8-6	TT6X8	ML8-6	TE-1086	
C6	80	6	AC5711/80	XPP-6060	NLW100-6	TT6X80	ML75-6	TE-1101.5	
C7	200	6	C426AE/C200	PWE6200	NLW200-6			TE-1104	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REMARKS	REPLACEMENT DATA					
					AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C8	.047	125V	10%		V84C2S47-10%		WMF2S47E			2WF-S47
C9	3300		5%					CM-20B-332J		
C10	.047	125V	10%		V84C2S47-10%		WMF2S47E			2WF-S47
C11	54		5%			TCZ-56	C10Q56C	CCTO-560	CNO-456	10TCC-Q56
C12	.047	125V			V84C2S47	DD-503	WMF2S47E			2WF-S47
C13	.047	125V	10%		V84C2S47-10%		WMF2S47E			2WF-S47
C14	18		5%			TCZ-18	C10Q18C	CCTO-180	CNO-180	10TCC-Q18
C15	.047	125V			V84C2S47	DD-503	WMF2S47E			2WF-S47
C16	.047	125V			V84C2S47	DD-503	WMF2S47E			2WF-S47
C17	4700				SI 4700	DD-472	BYA10D47M	CCD-472	GP247	10TS-D47
C18	.047	125V			V84C2S47	DD-503	WMF2S47E			2WF-S47
C19	150	N750	10%	Note 1	N750-SI 150	TCN-150	C10T15U	CCTN-151	CN7-315	10TCU-T15

Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	NORELCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	10K	1/4						Volume and Switch

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

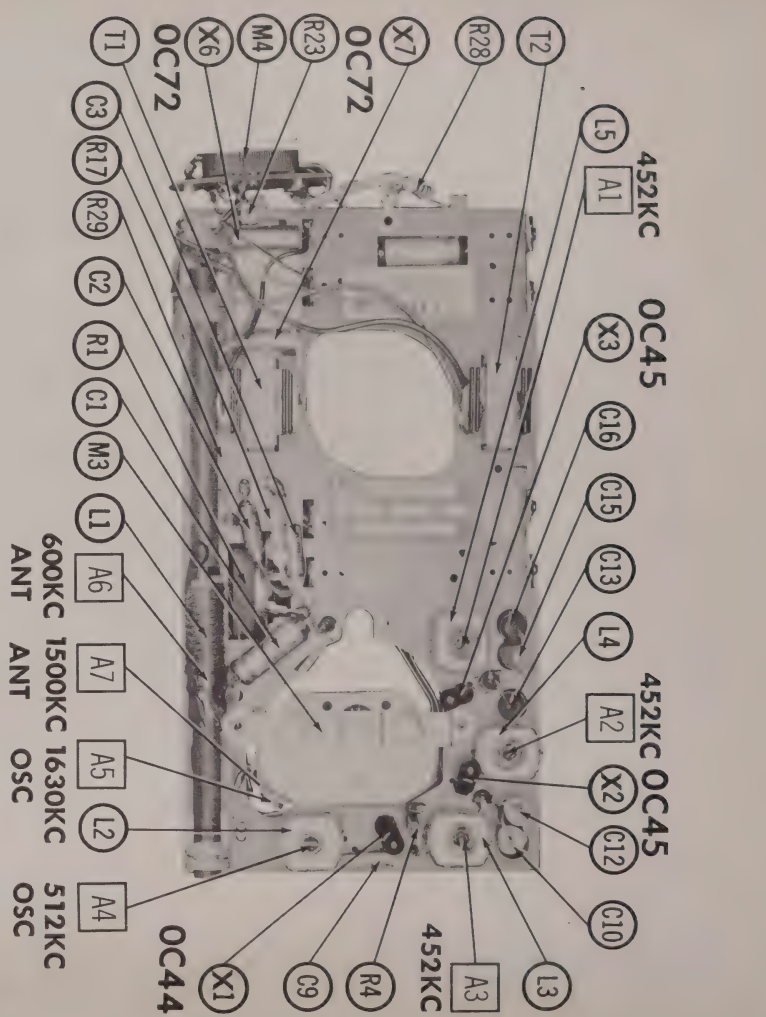
ITEM No.	RATING	REMARKS
R2	3300Ω	
R3	12K	
R4	18Ω	Note 1
R5	3300Ω	
R6	180K	
R7	560Ω	
R8	1000Ω	
R9	15K	
R10	4700Ω	
R11	1000Ω	

ITEM No.	RATING	REMARKS
R12	1000Ω	
R13	15K	
R14	680Ω	
R15	3300Ω	
R16	47K	
R17	1500Ω	
R18	4700Ω	
R19	3300Ω	
R20	12K	
R21	220Ω	

ITEM No.	RATING	REMARKS
R22	1000Ω	
R23	3000Ω	
R24	100Ω	
R25	10Ω	
R26	270Ω	
R27	330K	
R28	220Ω	Note 1 (100Ω) *
R29	47K	

Note 1. Not used in some versions.
* Alternate Value.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		NORELCO PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loopstick	A380362				
L2	Osc. Coil	A312865				
L3	1st IF Trans.	A312866				
L4	2nd IF Trans.	A312866				
L5	3rd IF Trans.	A312867				

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	NORELCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1	1	T329					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	NORELCO PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	1000Ω CT	4-6Ω	T349						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	NORELCO PART No.	QUAM PART No.	
SP1	2½"	PM	4-6Ω	AD2200Z	25A07Z4.8	

BATTERIES

ITEM No.	VOLTAGE	NORELCO PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1.5V			930 *		1015 *		M-15R *	* Four required

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		NORELCO PART No.	CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	OA95	OA95	1N60	1N60	1N60	Detector

MISCELLANEOUS

ITEM No.	PART NAME	NORELCO PART No.	NOTES
M3	Tuning Cap.	4900222	2 Gang
M4	Switch	A318757	(3 Position Rotary) Off, Radio-Buzzer
M5	Clock	A387199	

CABINETS & CABINET PARTS

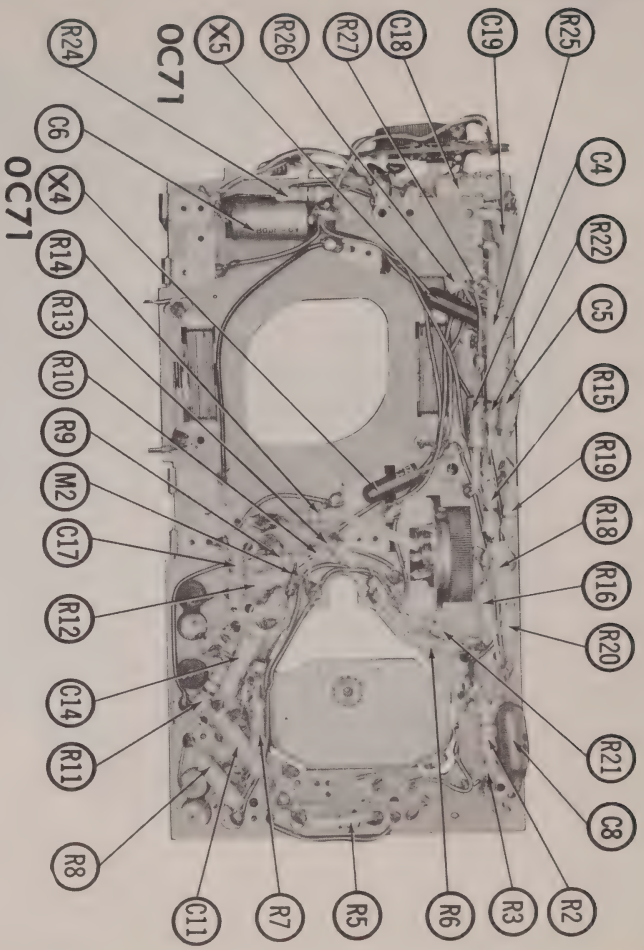
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	A377261	Tuning
Knob	A378336	Volume
Dial	A392569	Overseas
Dial	A392574	South
Dial	A383573	Clock
Window	A376283	Clock
Cabinet	P525003/350	
Cabinet Front	A330895	

WIRING DATA

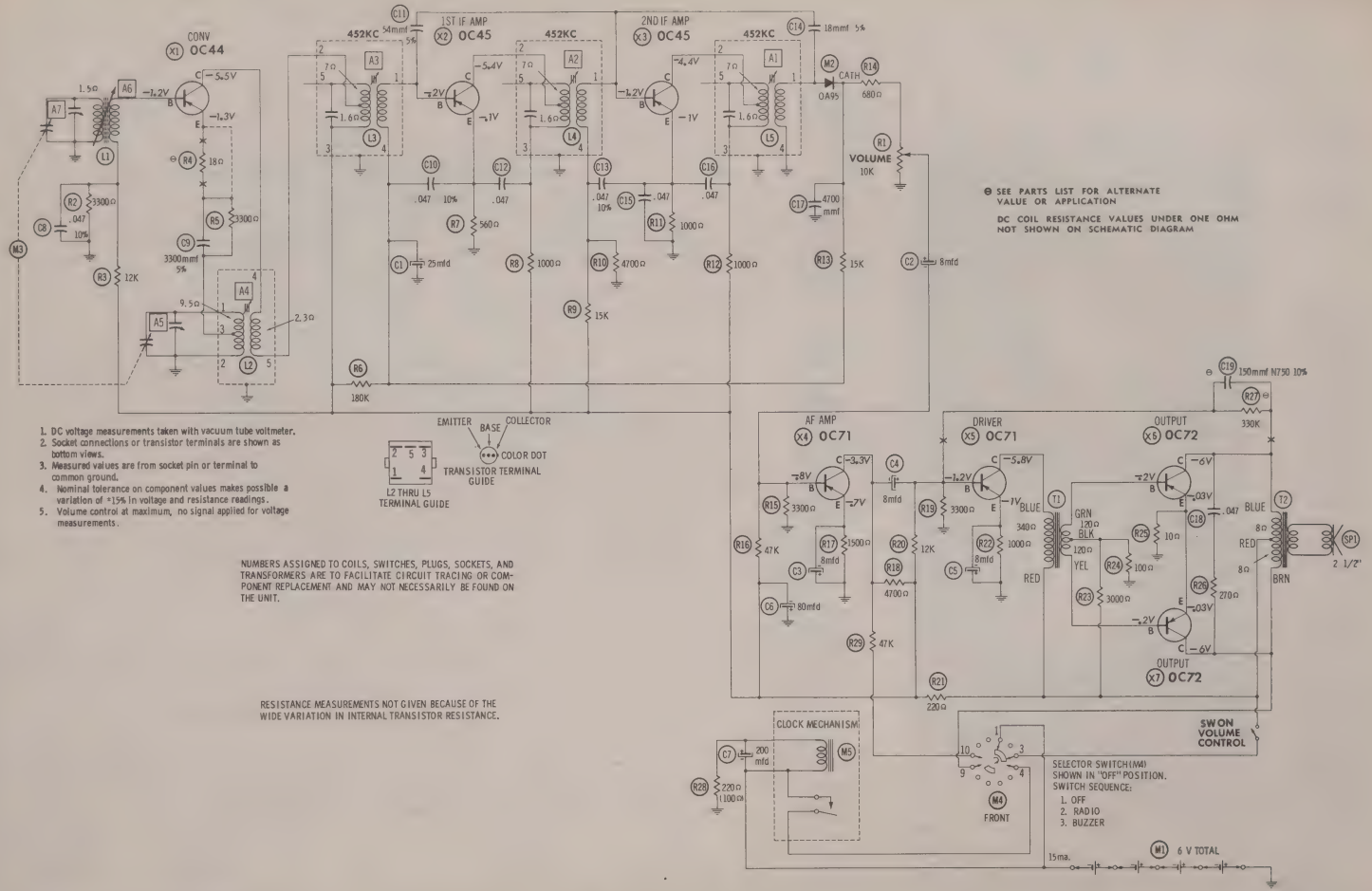
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—BOTTOM VIEW



NORELCO
MODEL 12X97T

FOLDER 14



1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1960

NORELCO MODEL L2X97T

PHOTOFACT® Folder with CIRCUITRACE®

OLYMPIC
MODEL SP-58

OLYMPIC
MODEL SP-58

OLYMPIC
MODEL SP-58

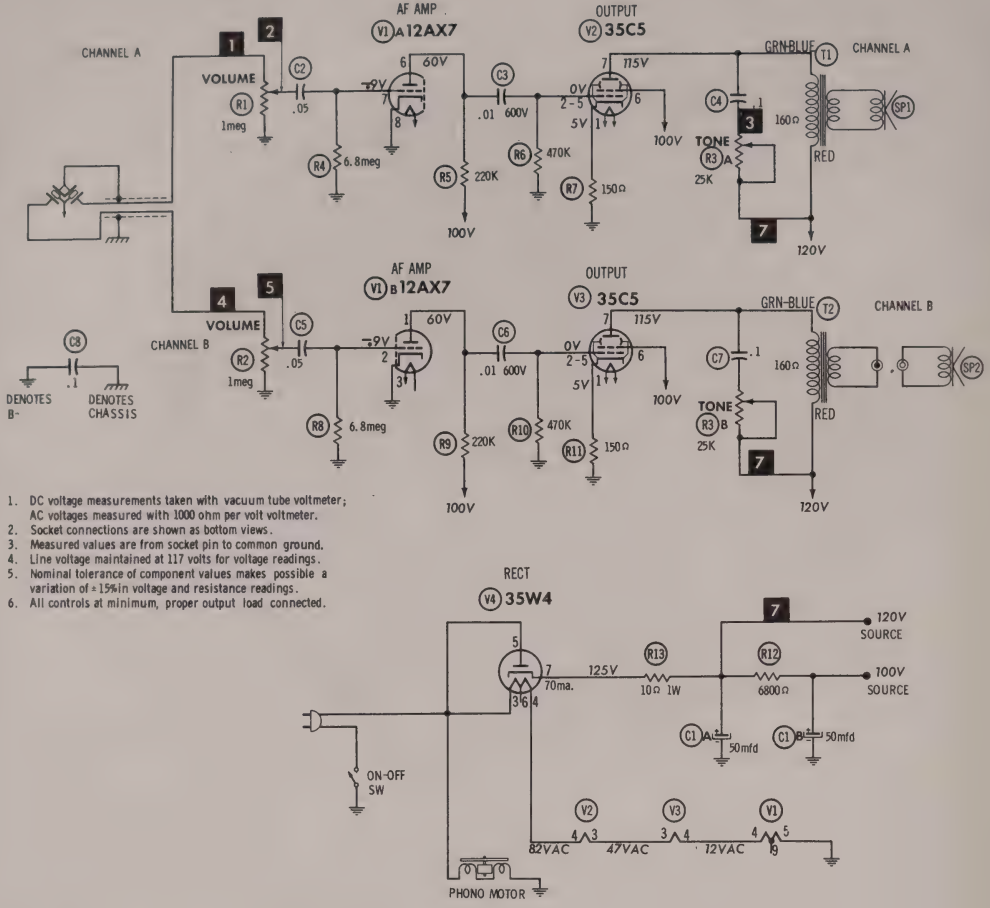
TRADE NAME	Olympic Model SP-58
MANUFACTURER	Olympic, A Div. of the Siegler Corp., 34-01 38th Ave., Long Island City 1, N. Y.
TYPE SET	AC Operated 4 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 30 Watts, .3 Amp. @117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER — SEE SIMILAR MONARCH UA8 — PHOTOFACT SET 381 FOLDER 11 OR RECORD CHANGER MANUAL RC-11

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

JT987



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†220K	6.8meg	0Ω	12Ω	0Ω	†220K	6.8meg	0Ω	6Ω
V2	35C5	150Ω	470K	47Ω	82Ω	470K	†6800Ω	†170Ω		
V3	35C5	150Ω	470K	47Ω	12Ω	470K	†6800Ω	†170Ω		
V4	35W4	NC	NC	117Ω	82Ω	117Ω	110Ω	¶		

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V4. NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE

©Howard W. Sams & Co., Inc. 1960

OLYMPIC
MODEL SP-58

PARTS LIST AND DESCRIPTIONS

TUBES

◆ GENERAL ELECTRIC ◆		RAYTHEON ◆ SYLVANIA ◆			
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Channel A AF Amp. - Channel B AF Amp.	12AX7	V3	Channel B Output	35C5
V2	Channel A Output	35C5	V4	Rectifier	35W4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	OLYMPIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	50	150		PR2-035	BBRD5515	PWD221	TDLD-9	TVA-2453	
B	50	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S5
C3	.01 600V		P688N-01	D6-103	CUB6S1	6DP-2-103	GEM-611	6TM-S1
C4	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C5	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S5
C6	.01 600V		P688N-01	D6-103	CUB6S1	6DP-2-103	GEM-611	6TM-S1
C7	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C8	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	OLYMPIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	1meg	1/2					P2-16A	Volume, Channel A
R2	1meg	1/2					P2-16A	Volume, Channel B
R3A	25K	1/2						Tone, Channel A
B	25K	1/2						Tone, Channel B

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R4	6.8meg	
R5	220K	
R6	470K	
R7	150Ω	

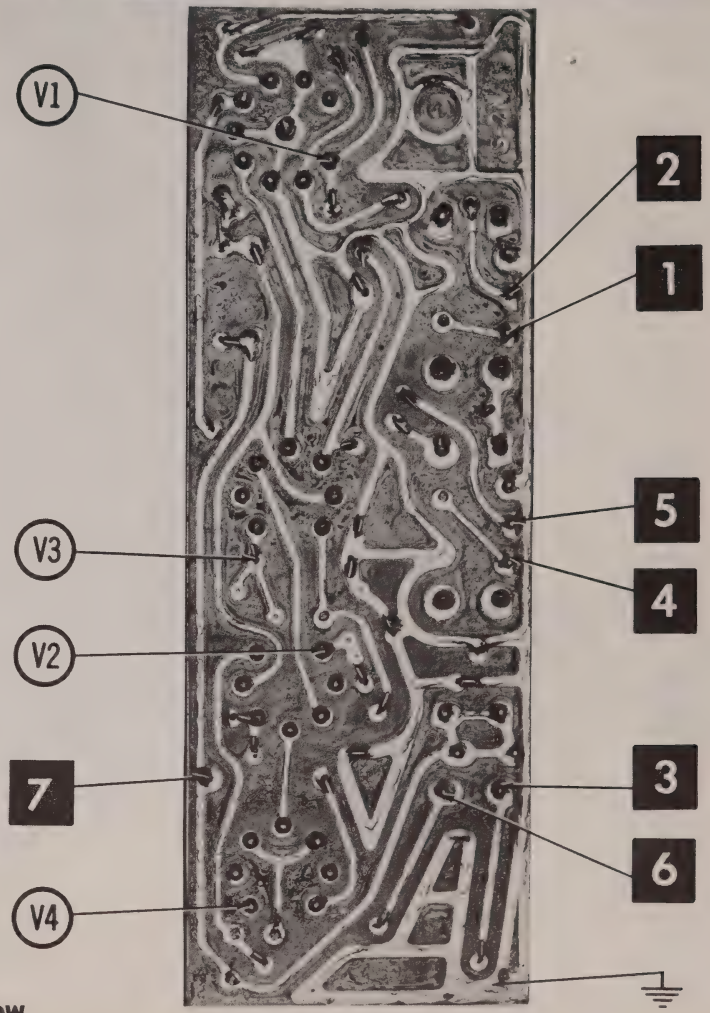
ITEM No.	RATING	REMARKS
R8	6.8meg	
R9	220K	
R10	470K	
R11	150Ω	

ITEM No.	RATING	REMARKS
R12	6800Ω	
R13	10Ω 1W	

PRINTED BOARD

A Howard W. Sams CIRCUITRACE® Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	OLYMPIC PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2000Ω	3-4Ω		A-3025	AU-605	A-3332	24S53	S-12X	
T2	2000Ω	3-4Ω							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	OLYMPIC PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω		4A1	
SP2	4"	PM	3-4Ω		4A1	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA								
	OLYMPIC PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		JENSEN PART No.		SONOTONE PART No.	
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE
M1		76-TS-TB		26S	S1-1 S3-3	49	CRA-55 & CRA-55LP	8TA4-S	N-8TA-S

PHONO NEEDLE

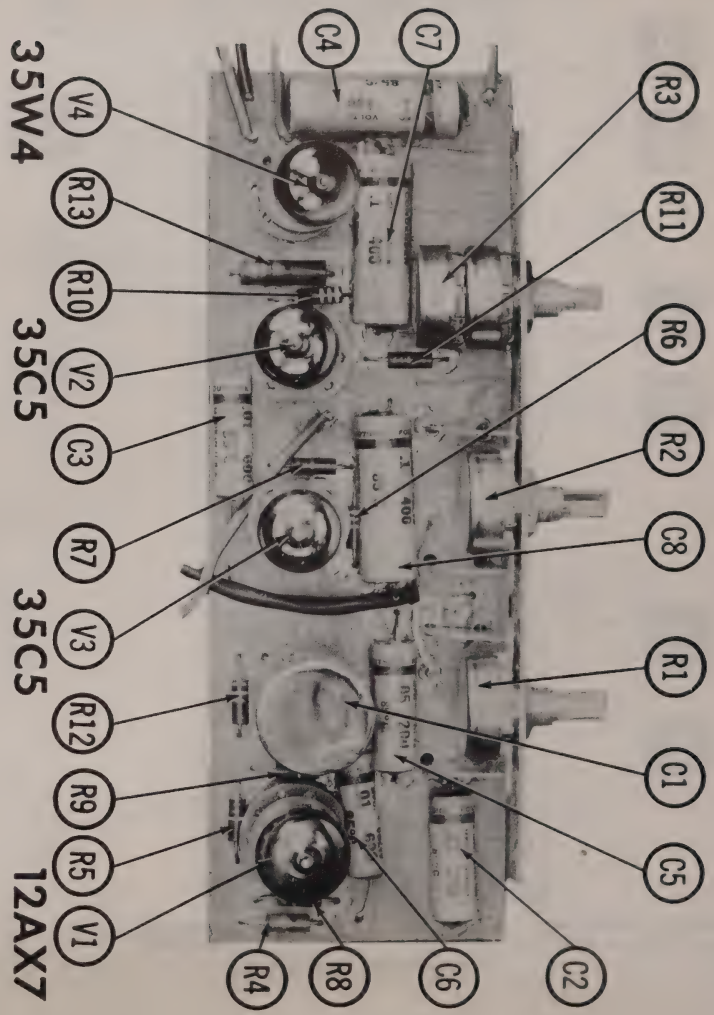
(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA		REMARKS
	OLYMPIC PART No.	JENSEN PART No.	
M2		CRA-55 † or CRA-55D ♦	† Jewel ♦ Diamond
		CRA-55LP† or CRA-55LPD♦	

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

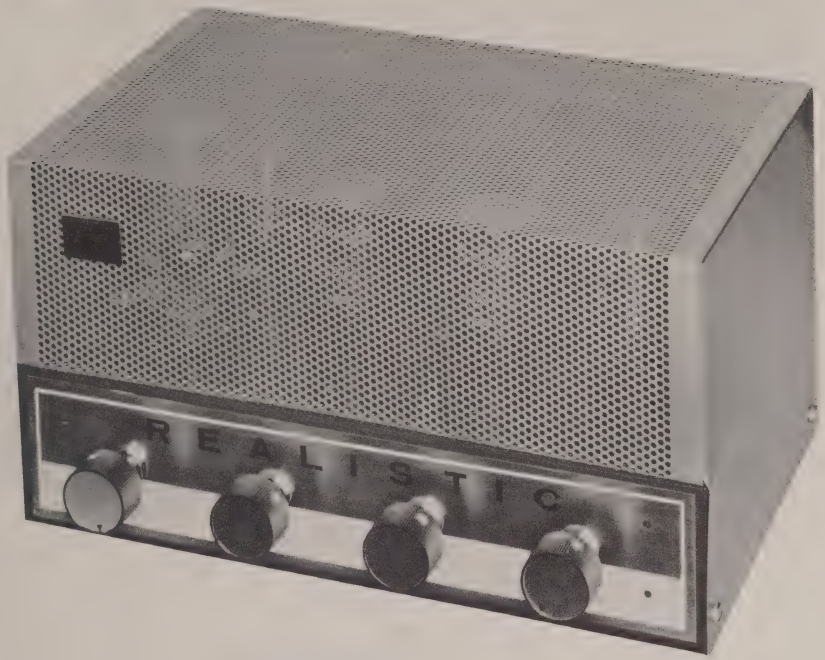
CHASSIS—TOP VIEW



PHOTOFACT® Folder

REALISTIC
MODEL AF-12

REALISTIC
MODEL AF-12



REALISTIC
MODEL AF-12

TRADE NAME	Realistic Model AF-12
SUPPLIER	Radio Shack Corp., 730 Commonwealth Ave., Boston 17, Mass.
TYPE SET	AC Operated 5 Tube Audio Amplifier
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 61 Watts, .59 Amp. @117 Volts AC

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

JX991

SET 503 FOLDER 16

PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •

ITEM No.	USE	TYPE
V1	Preamplifier	12AX7
V2	AF Amp. -Phase Inverter	12AX7
V3	Output	6V6GT
V4	Output	6V6GT
V5	Rectifier	5Y3GT

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA REALISTIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	40	400		AFH4-85-25	D0655	FP431.3	TMQ-4592	TVL-4746	
B	40	400							
C	10	400							
D	50	50							
C2	10	350		PRS1620	BR1045	TC62	TD-10-450	TVA-1604	
C3	50	25		PRS1265	BBR50-25	TC29	TD-50-25	TVA-1206	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

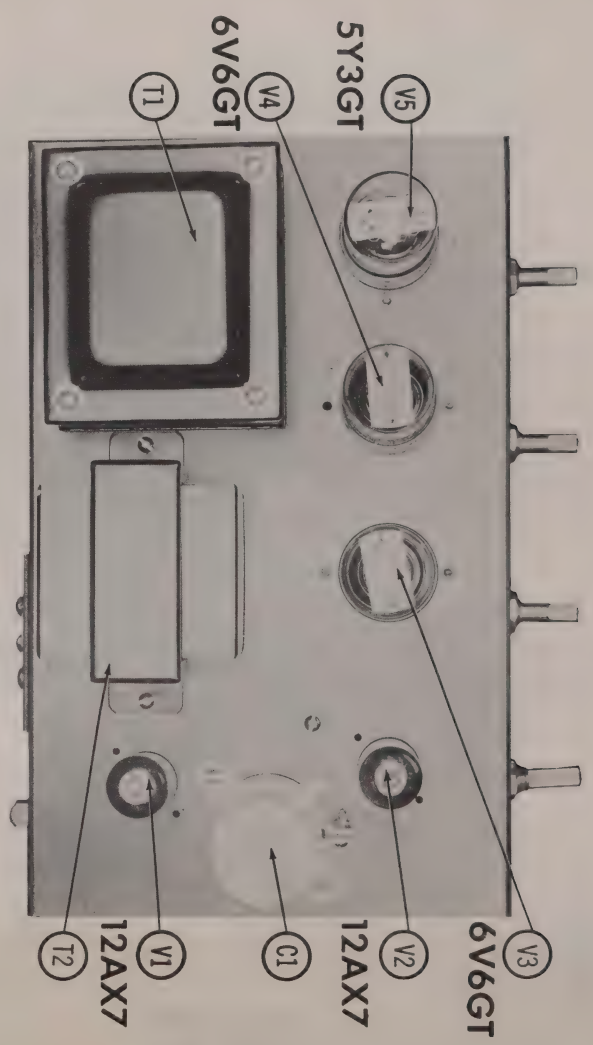
ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	10 10%		NPO-S1 10	D6-100	L10Q1	CCD-100	GP410	10TS-Q10
C5	.01 600V		P688N-01	D6-103	CUB6S1	6DP-2-103	GEM-611	6TM-S1
C6	.01 200V		P288N-01	D6-103	CUB2S1	4DP-1-103	GEM-411	4TM-S1
C7	.003 400V		P488N-003	D6-302	CUB6D3	6DP-1-302	GEM-623	6TM-D3
C8	500	Note 1	1468-0005	D6-501	5W5T5	CM-19B-501M	MC245	1FM-350
C9	250	Note 1	1468-00025	D6-251	5W5T25	CM-19B-251M	MC240	1FM-325
C10	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1
C11	.02 400V		P488N-02	DD-203	CUB4S2	4DP-2-203	GEM-412	4TM-S2
C12	.005 400V		P488N-005	D6-502	CUB6D5	6DP-1-502	GEM-625	6TM-D5
C13	.01 200V		P288N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1
C14	.01 200V		P288N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1
C15	.01 200V		P288N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1
C16	500	Note 1	1468-0005	D6-501	5W5T5	CM-19B-501M	MC245	1FM-350
C17	250	Note 1	1468-00025	D6-251	5W5T25	CM-19B-251M	MC240	1FM-325

Note 1. When C8 and C16 are 750mfd, C9 and C17 are not used.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA REALISTIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½		ABT-67				Volume
	120K Tap							
B	Shaft			AK-29				
R2A	500K	½		AB-60				Treble
B	Shaft			AK-29				
R3A	500K	½		AB-60				Bass
B	Shaft			AK-29				
C	Switch			KR-3				Power Off-On
R4A	100Ω	2(WW)		WN-101	A43-100	W11-084	R100L	Hum Balance
B	Shaft			Not Req.	FKS-1/4	SK5	Not Req.	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R5	50K	
R6	3meg	
R7	100K	
R8	100K	
R9	3meg	
R10	100K	
R11	10K	

ITEM No.	RATING	REMARKS
R12	500K	
R13	50K	
R14	5000Ω	
R15	100Ω	
R16	2500Ω	
R17	1meg	
R18	100K	

ITEM No.	RATING	REMARKS
R19	5000Ω	
R20	100K	
R21	3000Ω	
R22	500K	
R23	500K	
R24	250Ω 10W	IRC#PW10-250Ω
R25	3000Ω 10W	IRC#PW10-3000Ω

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	PRI.	SEC. 1	SEC. 2	REALISTIC PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V@ .59A	630 VCT @.080A	5V@ 2A				PM8408			
	SEC. 3	SEC. 4	SEC. 5							
	6.3V@ 1.5A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	REALISTIC PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	8000Ω CT	16Ω Tap @ 8Ω, 4Ω							

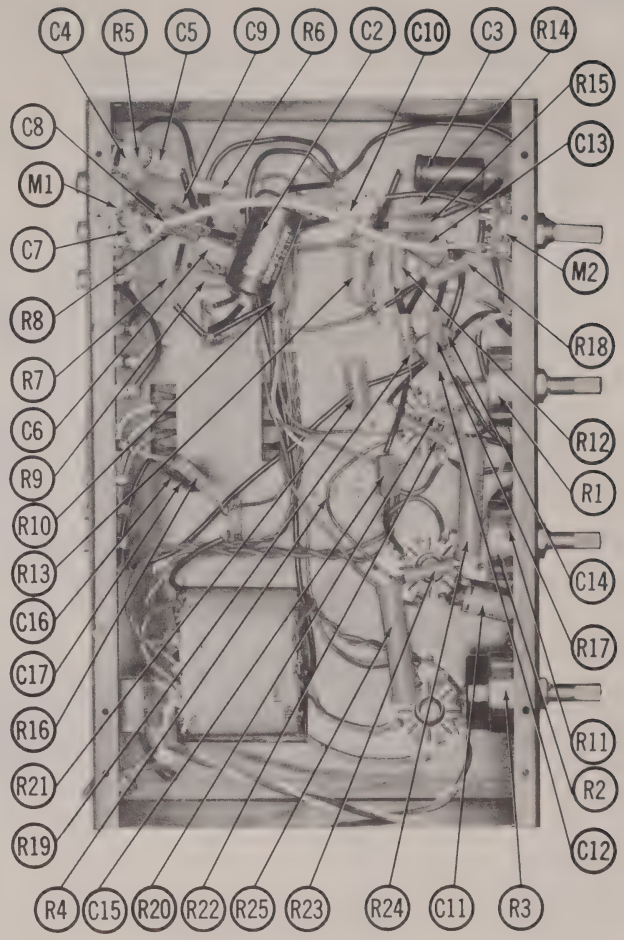
MISCELLANEOUS

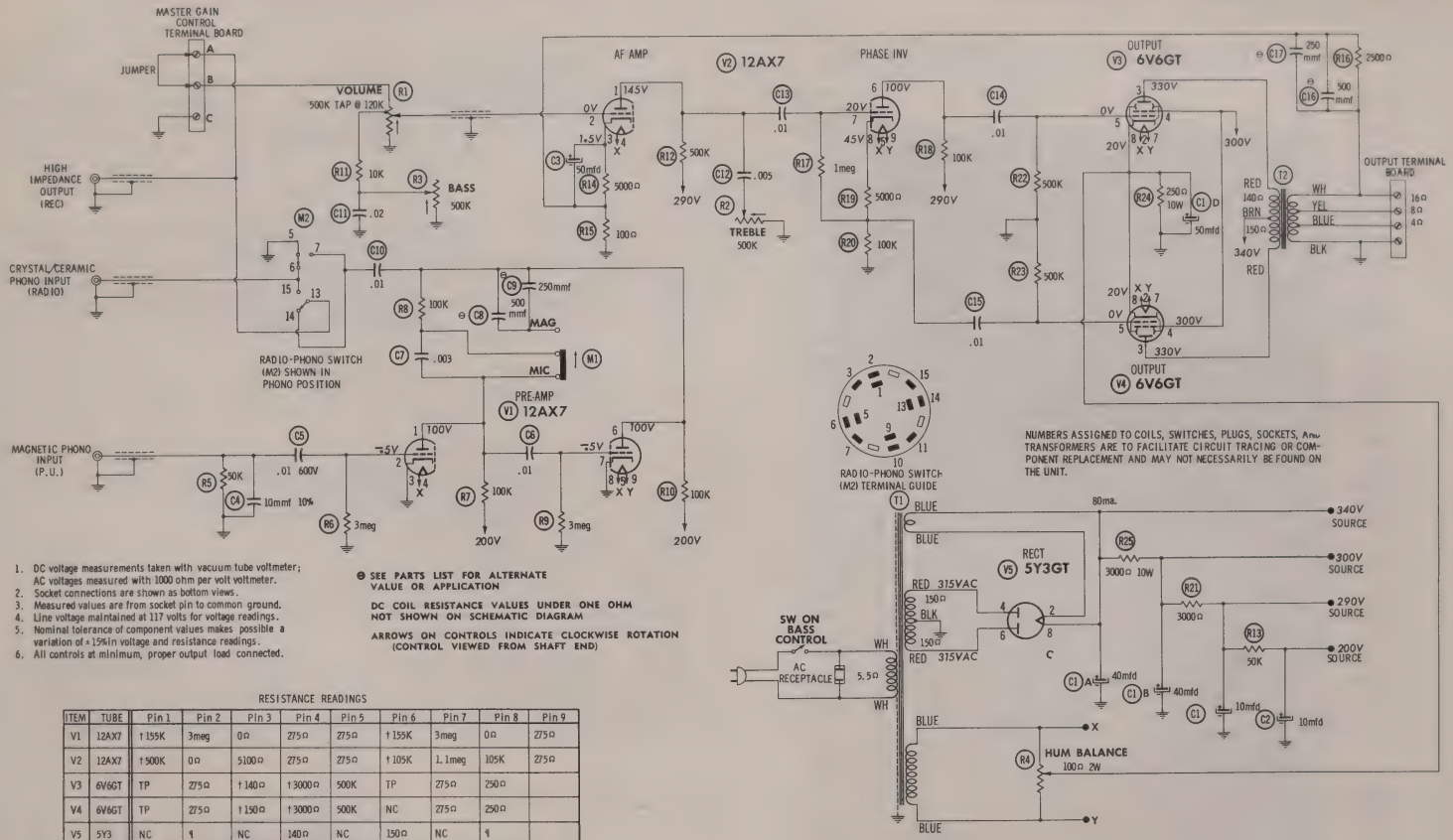
ITEM No.	PART NAME	REALISTIC PART No.	NOTES
M1	Switch		Mic-Mag (DPDT Slide Type)
M2	Switch		Radio-Phono (Rotary Type)

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No.	1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)

CHASSIS—BOTTOM VIEW





NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†155K	3meg	0Ω	275Ω	275Ω	†155K	3meg	0Ω	275Ω
V2	12AX7	†500K	0Ω	5100Ω	275Ω	275Ω	†105K	1.1meg	105K	275Ω
V3	6V6GT	TP	275Ω	†140Ω	†3000Ω	500K	TP	275Ω	250Ω	
V4	6V6GT	TP	275Ω	†150Ω	†3000Ω	500K	NC	275Ω	250Ω	
V5	5Y3	NC	¶	NC	140Ω	NC	150Ω	NC	¶	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 8 OF V5. NC NO CONNECTION.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1960

REALISTIC MODEL AF-12

PHOTOFACT® Folder

V-M MODEL 815

V-M MODEL 815

V-M MODEL 815

TRADE NAME	V-M Model 815
MANUFACTURER	V-M Corp., 375 W. Main Street, Benton Harbor, Michigan
TYPE SET	AC Operated 8 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110-120 Volts AC, 60 Cycles RATING 115 Watts, 1 Amp. @117 Volts AC (Less Motor)

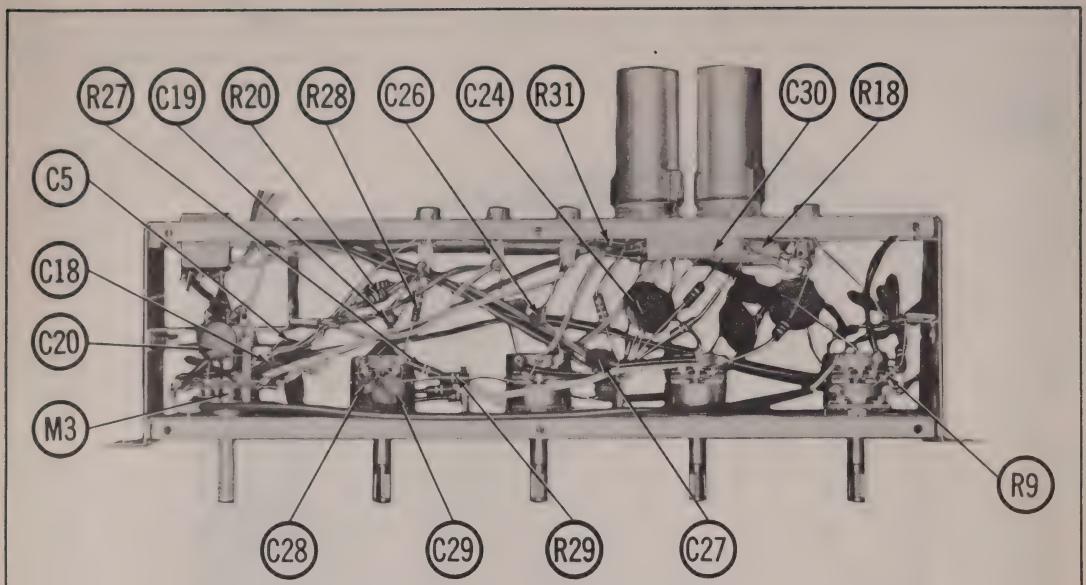
FOR SERVICE INFORMATION ON RECORD CHANGER— SEE V-M 1201 — PHOTOFACT SET 436 FOLDER 18
OR RECORD CHANGER MANUAL RC-12

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

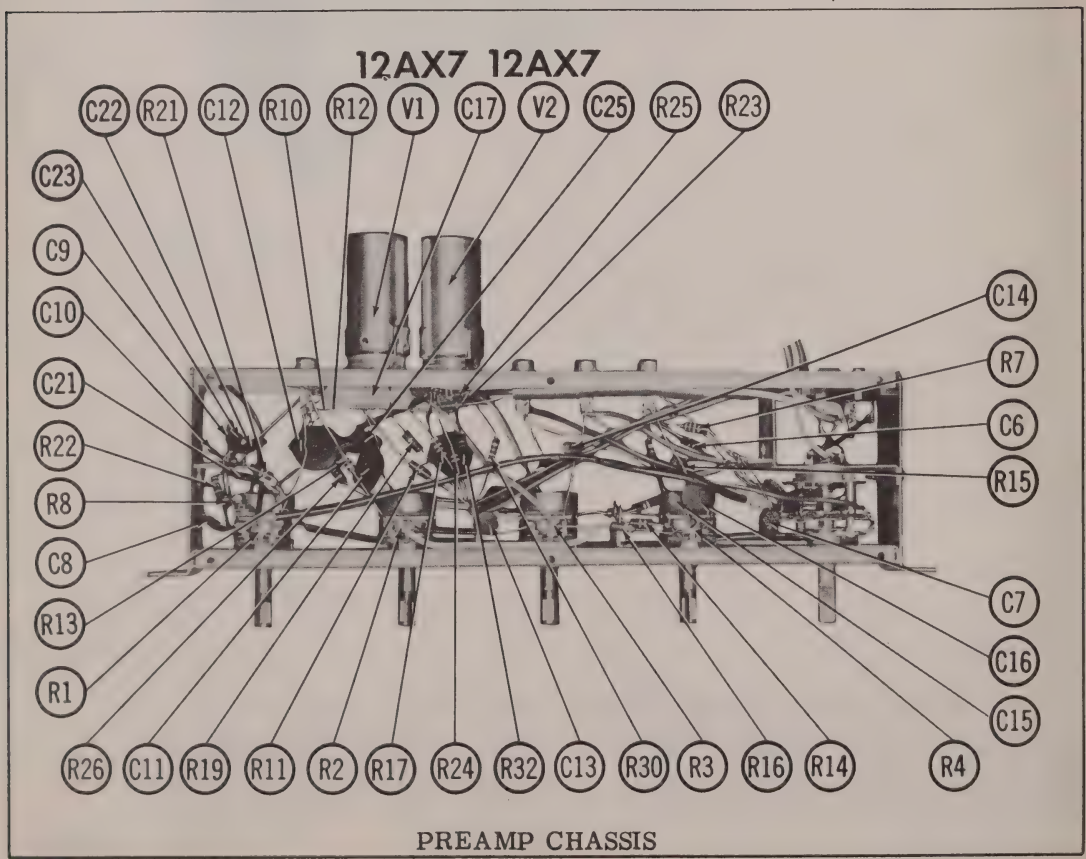
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

JT 911

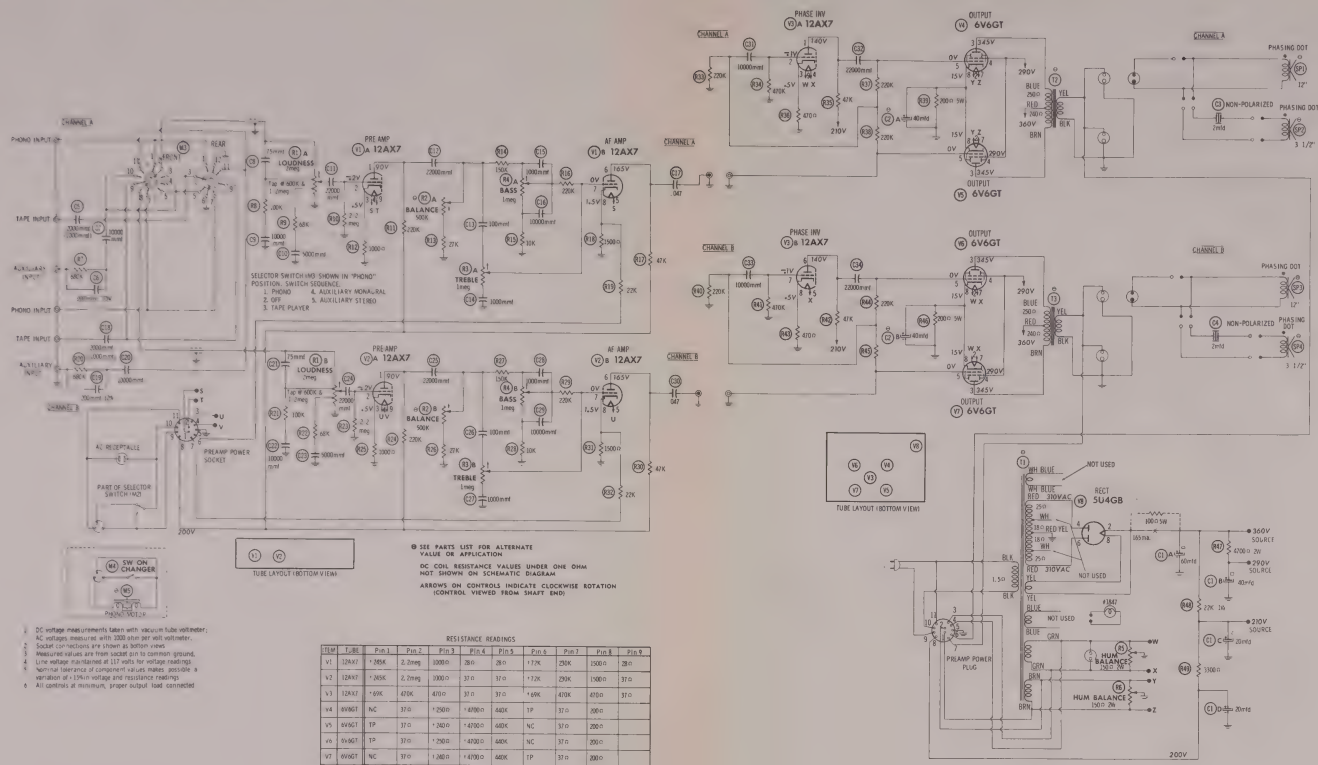
SET 503 FOLDER 17



PREAMP CHASSIS



PREAMP CHASSIS



❶ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	*.245K	2.2meg	1000Ω	28Ω	28Ω	†.77K	250K	1500Ω	28Ω
V2	12AX7	*.245K	2.2meg	1000Ω	37Ω	37Ω	†.72K	250K	1500Ω	37Ω
V3	12AX7	*.69K	470K	470Ω	37Ω	37Ω	*.69K	470K	470Ω	37Ω
V4	6V6GT	NC	37Ω	*.250Ω	*.470Ω	640K	TP	37Ω	200Ω	
V5	6V6GT	TP	37Ω	*.240Ω	*.470Ω	640K	NC	37Ω	200Ω	
V6	6V6GT	TP	37Ω	*.250Ω	*.470Ω	640K	NC	37Ω	250Ω	
V7	6V6GT	NC	37Ω	*.240Ω	*.470Ω	640K	TP	37Ω	200Ω	
V8	5U4GB	NC	¶	NC	43Ω	NC	43Ω	NC	¶	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 8 OF V8.
NC NO CONNECTION
TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1960

V-M MODEL 815

AMP CHASSIS - BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (CBS • GENERAL ELECTRIC • RAYTHEON • SYLVANIA)
V1	Channel A Preamp.-AF Amp.	12AX7
V2	Channel B Preamp.-AF Amp.	12AX7
V3	Channel A Phase Inv. - Channel B Phase Inv.	12AX7
V4	Channel A Output	6V6GT
V5	Channel A Output	6V6GT
V6	Channel B Output	6V6GT
V7	Channel B Output	6V6GT
V8	Rectifier	5U4GB

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP	RATING VOLT.	REPLACEMENT DATA V-M PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲60	450	12125		C0365	FP396.1	TMT-43	TVL-3791	
B	■40	450			BR2045	TC795	TD-20-450	TVA-1709	
C	▲20	450							
D	20	450							
C2A	40	25	12126 ①	PRS2195	BBRD4415	TCD48	TDLD-7	TVA-2445	
B	40	25							
C3	2	25NP	12130	NP-PRS7300	BBR4-150	TCN502		TVANS-1202*	
C4	2	25NP	12130	NP-PRS7300	BBR4-150	TCN502		TVANS-1202*	

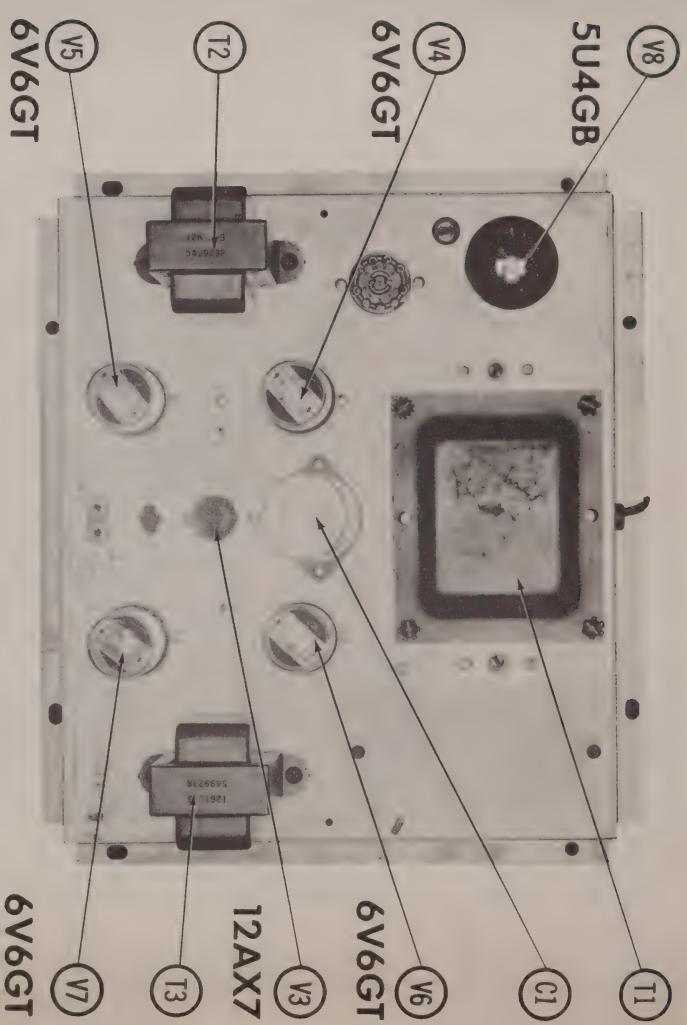
① Some versions may use Part #12139 in this application.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	2000	(1000) †	BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C6	200 10%		DI-200	DD-201	LI0T2	CCD-201	GP320	10TS-T20
C7	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C8	75		DI-82	DD-750	LI0Q75	CCD-750	GP475	10TS-Q75
C9	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C10	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C11	22000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C12	22000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C13	100		BPD-0001	DD-101	LI0T1	CCD-101	GP310	10TS-T10
C14	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C15	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C16	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C17	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C18	2000	(1000) †	BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C19	200 10%		DI-200	DD-201	LI0T2	CCD-201	GP320	10TS-T20
C20	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	75		DI-82	DD-750	LI0Q75	CCD-750	GP475	10TS-Q75
C22	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C23	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C24	22000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C25	22000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C26	100		BPD-0001	DD-101	LI0T1	CCD-101	GP310	10TS-T10
C27	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C28	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C29	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C30	.047 400V		P488N-01	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C31	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C32	22000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C33	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C34	22000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	V-M PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	2meg*	1/2	12398	BT-175				Loudness, Channel A
B	2meg*	1/2		STR-175				Loudness, Channel B
R2A	500K	1/2	12399	B-59	AD47-500K-S		FA55L	Balance, Channel A ①
B	500K	1/2		SR-59	Not Req.		RU55L	Balance, Channel B ①
C	Shaft			Not Req.	KSS-3		CS3500	
R3A	1meg	1/2	12400	B-70	AD47-1meg-Z		FA16A	Treble, Channel A
B	1meg	1/2		SR-70	Not Req.		RU16A	Treble, Channel B
C	Shaft			Not Req.	KSS-3		CS3500	
R4A	1meg	1/2	12401	B-70	AD47-1meg-Z		FA16A	Bass, Channel A
B	1meg	1/2		SR-70	Not Req.		RU16A	Bass, Channel B
C	Shaft			Not Req.	KSS-3		CS3500	
R5A	150Ω	2(WW)	12361	WN-201	A43-150	WPK-200	FL200P	Hum Balance, Channel A
B	Shaft			Not Req.	FKS-1/4	Not Req.	Not Req.	
R6A	150Ω	2(WW)	12361	WN-201	A43-150	WPK-200	FL200P	Hum Balance, Channel B
B	Shaft			Not Req.	FKS-1/4	Not Req.	Not Req.	

* Taps ⓐ 600K & 1.2meg.
① Some versions may use 5meg in this application.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R7	680K	
R8	100K	
R9	68K	
R10	2.2meg	
R11	220K	
R12	1000Ω	
R13	27K	
R14	150K	
R15	10K	
R16	220K	
R17	47K	
R18	1500Ω	
R19	22K	
R20	680K	
R21	100K	

ITEM No.	RATING	REMARKS
R22	68K	
R23	2.2meg	
R24	220K	
R25	1000Ω	
R26	27K	
R27	150K	
R28	10K	
R29	220K	
R30	47K	
R31	1500Ω	
R32	22K	
R33	220K	
R34	470K	
R35	47K	
R36	470Ω	

ITEM No.	RATING	REMARKS
R37	220K	
R38	220K	
R39	200Ω 5W	
R40	220K	
R41	470K	
R42	47K	
R43	470Ω	
R44	220K	
R45	220K	
R46	200Ω 5W	
R47	4700Ω 2W	
R48	22K 1W	
R49	3300Ω	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	V-M PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ⓐ 1A	620VCT ⓐ 165A Tap ⓐ 260VCT (Not used)	5V (Not used)	12613-4①	26R93②	P-2833③			26R93②	R-49BC④
	SEC. 3	SEC. 4	SEC. 5							
	5V ⓐ 3A	6.3V (Not used)	6.3V ⓐ 1.6A							
	SEC. 6									
	6.3V ⓐ 1.2A									

① Alternate Part #12613.
② Tape 1.2A (6.3V) Winding.
③ Tape .9A and 1.95A (6.3V) Windings.
④ Tape 1A and 1.2A (6.3V) Windings.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	V-M PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	8000Ω CT	3-4Ω	12612-3①	24S06	A-2901	AU-600	A-3823	24S06	S-55Z	
T3	8000Ω CT	3-4Ω	12612-3 ①	24S06	A-2901	AU-600	A-3823	24S06	S-55Z	

① Alternate Part #12612.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	V-M PART No.	QUAM PART No.	
SP1	12"	PM	3-4Ω	21225-1*	12A31	* Alternate Part #21225
SP2	3½"	PM	3-4Ω	21226-1 †		† Alternate Part #21226
SP3	12"	PM	3-4Ω	21225-1*	12A31	
SP4	3½"	PM	3-4Ω	21226-1 †		

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA								
	V-M PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		JENSEN PART No.		SONOTONE PART No.	
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE
M1	16708-G	13TB		26S	S1-1 S3-3	53	J43 J47X	8TA4-S	N-8TA-S

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	V-M PART No.	CLEVITE WALCO PART No.	JENSEN PART No.	
M2	18626-B †	W-103STSS † or W-103STDS †♦	S-69X † or S-69XSD †♦ or S-69XDD ♦	† Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	V-M PART No.	NOTES
M3	Switch	12396	Function Selector
M4	Switch	21338	Changer Off-On (Part of Changer)
M5	Motor Assy.	18361	Complete (Includes Motor #9134) (Alliance)
	Motor Assy.	18781	Complete (Includes Motor #9134) (Gl)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	20945-B	Loudness, Bass, Treble, Balance
Knob	20944-B	Function
Cabinet	19824-C	Cherry, Complete
Cabinet Lid	1188-C	

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

FOLDER 17
V-M MODEL 815

PHOTOFACT® Folder

ZENITH MODELS SFD280M, R, SFD2530E, R, W, Y, SFD2535M, R (Ch. 3D33, 9D26)

ZENITH MODELS SFD280M, R, SFD2530E, R, W, Y, SFD2535M, R (Ch. 3D33, 9D26)

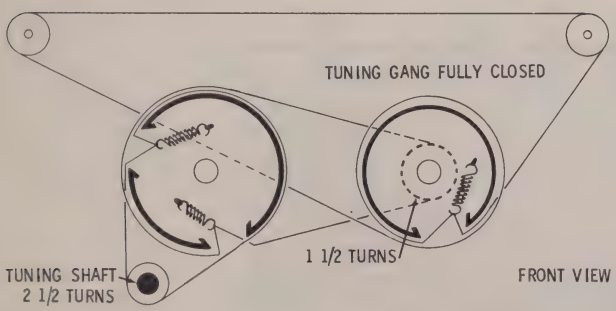
MODEL SFD2530R

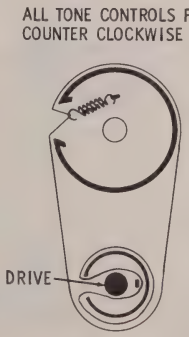
ZENITH MODELS SFD280M, R, SFD2530E, R, W, Y, SFD2535M, R (Ch. 3D33, 9D26)

TRADE NAME	Zenith Models SFD280M, SFD280R, SFD2530E, SFD2530R, SFD2530W, SFD2530Y, SFD2535M, SFD2535R (Tuner Ch. 9D26, Amp. Ch. 3D32)		
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois		
TYPE SET	AC Operated 9 Tube FM-AM Tuner With Stereo Preamplifier, 3 Tube Stereo Amplifier, And 4 Speed Automatic Record Changer		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	115 Watts, 1 Amp. @117 Volts AC (Radio)
TUNING RANGE—BROADCAST	535 - 1620KC	FREQ. MOD.	88 - 108MC

FOR SERVICE INFORMATION ON RECORD CHANGER PART #169-106 — SEE SIMILAR ZENITH S-14078 — PHOTOFACT SET 392 FOLDER 14 OR RECORD CHANGER MANUAL RC-11

DIAL CORD STRINGING





HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of JN869

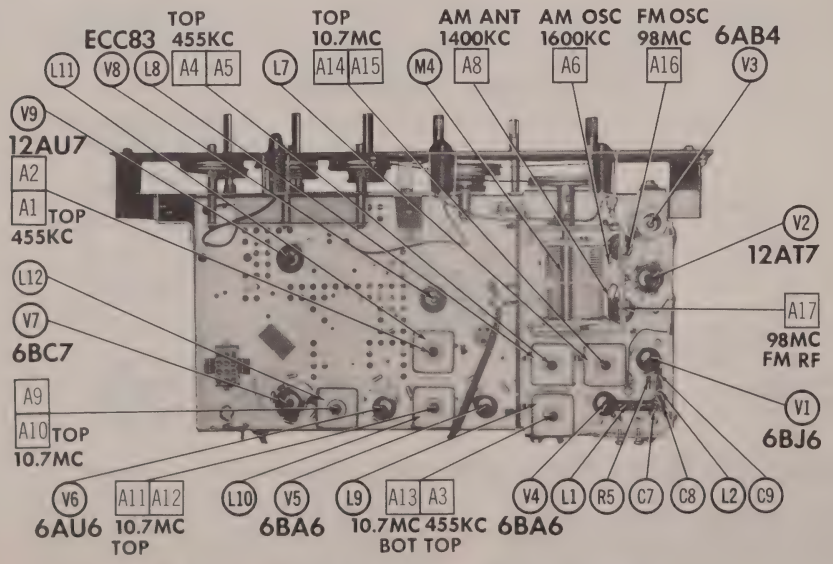
the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

SET 503 FOLDER 18

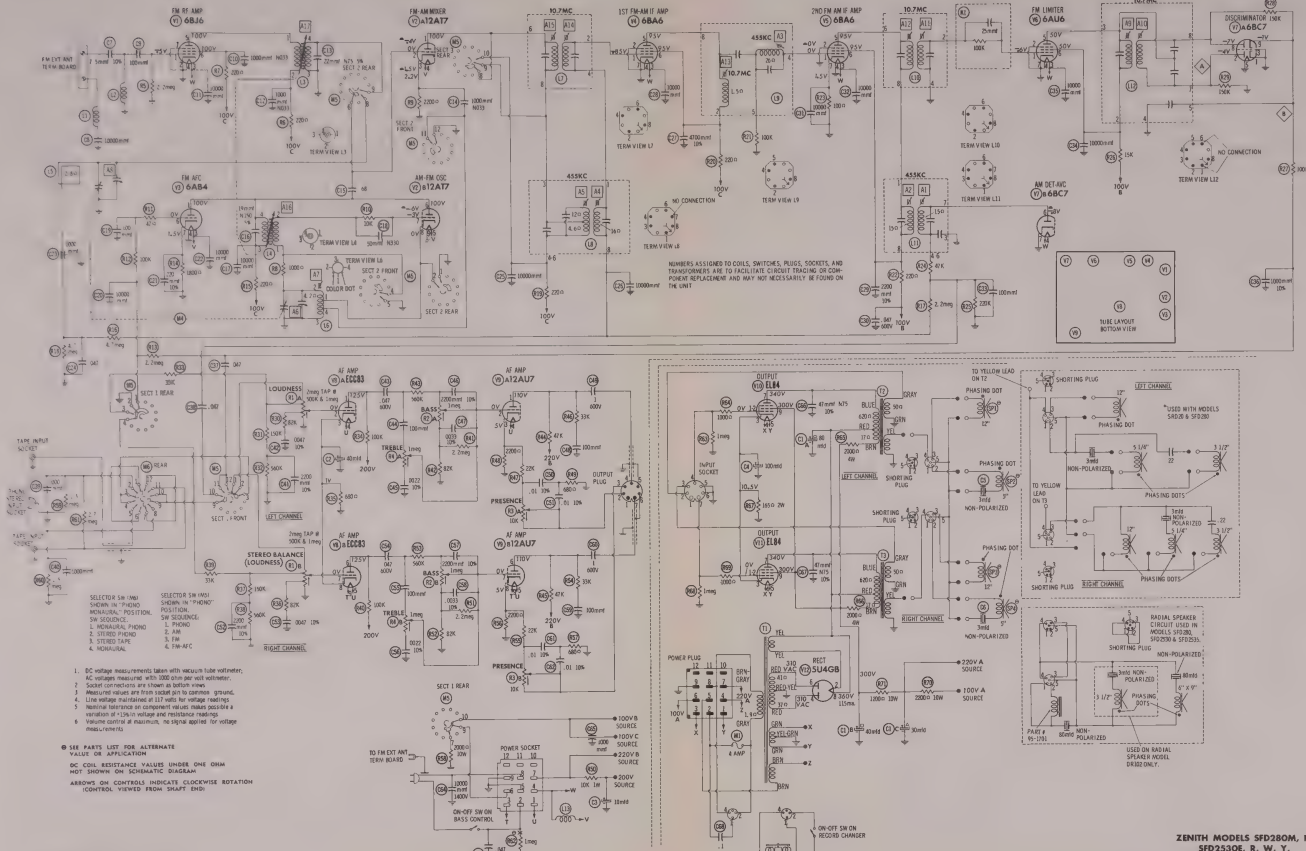
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BJ6	2.2meg	0Ω	.3Ω	0Ω	†3600Ω	†3600Ω	0Ω		
V2	12AT7	†3600Ω	.4Ω ▬2.5meg	2200Ω	.3Ω	.3Ω	†3600Ω	10K	0Ω ▬1.4Ω	0Ω
V3	6AB4	†3600Ω	NC	.3Ω	0Ω	0Ω	100K ■2.8meg	1800Ω		
V4	6BA6	1.7meg	0Ω	.3Ω	0Ω	†3600Ω	†3600Ω	0Ω		
V5	6BA6	100K	0Ω	.3Ω	0Ω	†3600Ω	†3600Ω	100Ω		
V6	6AU6	100K	0Ω	.3Ω	0Ω	†19K	†19K	0Ω		
V7	6BC7	0Ω	150K	0Ω	.3Ω	0Ω	270K	0Ω	150K	300K
V8	ECC83 12AX7	†110K	0Ω	680Ω	.2Ω	.2Ω	†110K	0Ω	680Ω	.2Ω
V9	12AU7	†49K	82K	1900Ω	.2Ω	.2Ω	†49K	82K	1900Ω	.2Ω
V10	EL84 6BQ5	1meg	1meg	165Ω	.2Ω	.2Ω	NC	†620Ω	NC	†2000Ω
V11	EL84 6BQ5	1meg	1meg	165Ω	.2Ω	.2Ω	NC	†620Ω	NC	†2000Ω
V12	5U4GB	NC	¶	TP	37Ω	TP	41Ω	TP	¶	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 8 OF V12.
ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
▬ MEASURED IN "AM" POSITION. NC NO CONNECTION
■ MEASURED IN "AFC" POSITION. TP TIE POINT

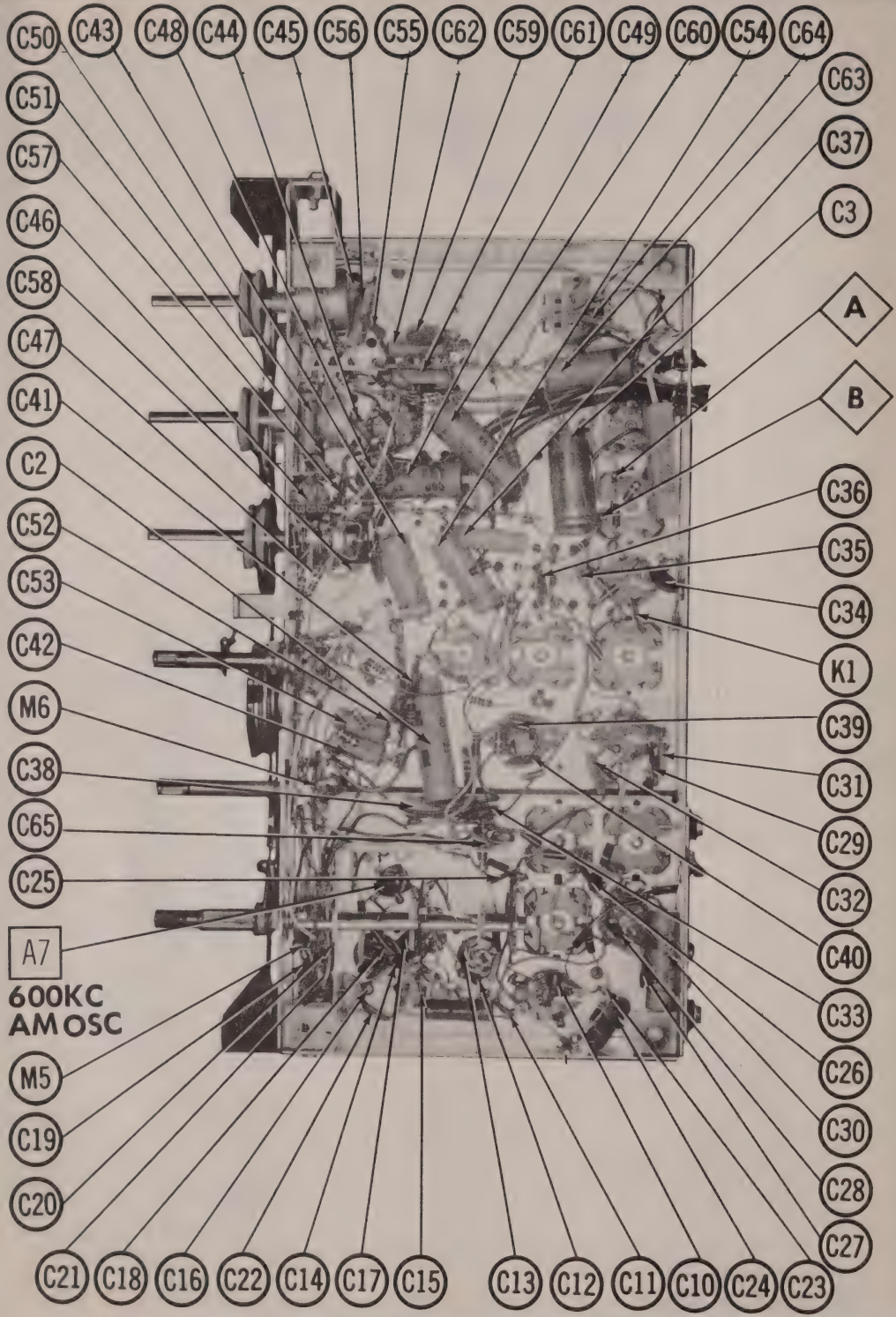


TUNER CHASSIS—TOP VIEW

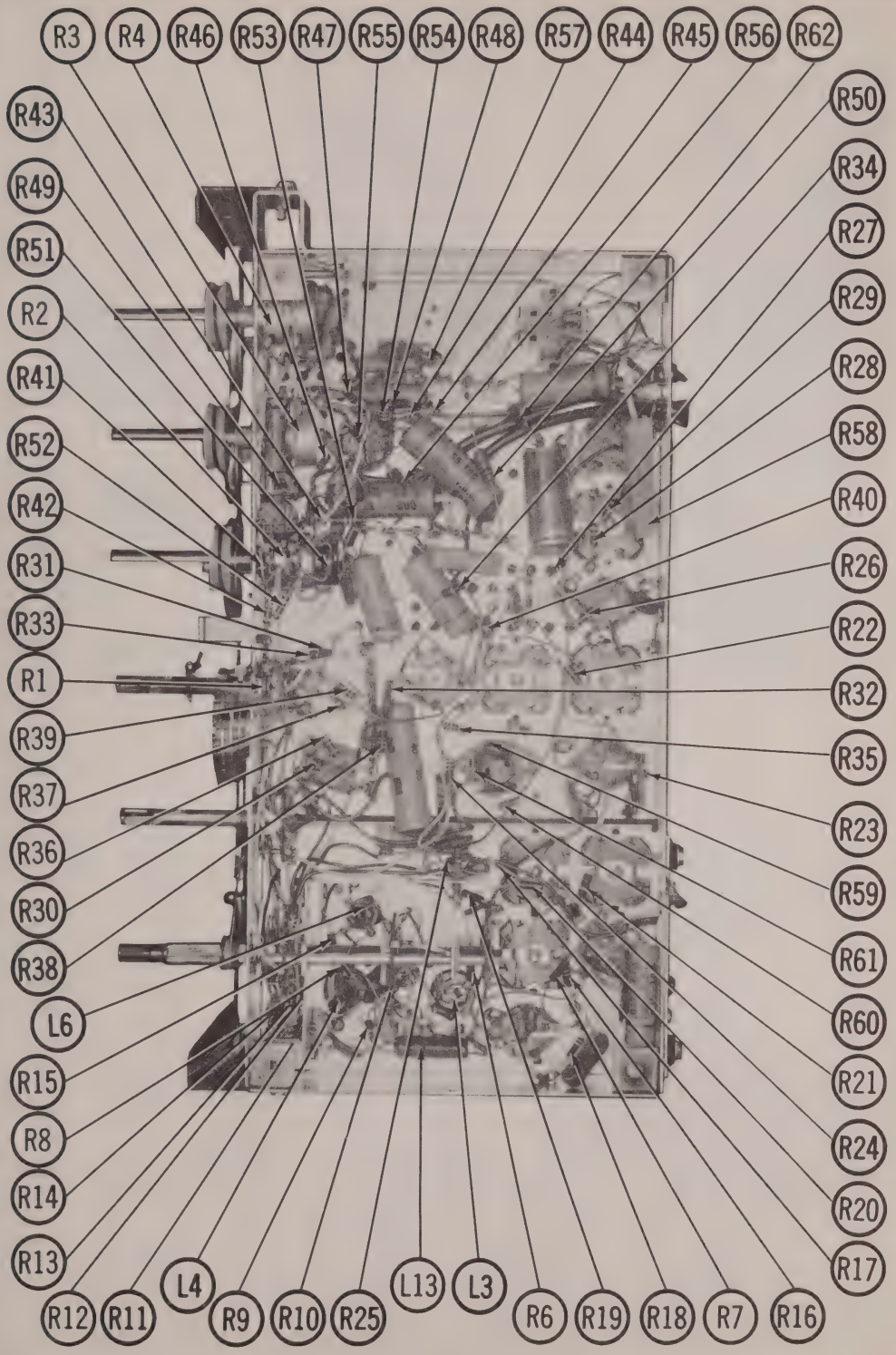

FM RF AMP V1 6BJ6
FM-AM MIXER V2 12AT7
1ST FM-AM IF AMP V3 6BA6
2ND FM-AM IF AMP V4 6BA6
FM LIMITER V5 6AU6
DISCRIMINATOR V6 6BC7
FM AFC V7 6AB4
AM-FM OSC V8 12AT7
AM DET-AVC V9 6BC7
10.7MC
455KC
TERM VIEW L3
TERM VIEW L4
TERM VIEW L5
TERM VIEW L7
TERM VIEW L8
TERM VIEW L9
TERM VIEW L10
TERM VIEW L11
TERM VIEW L12
NO CONNECTION
TUBE LAYOUT BOTTOM VIEW
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT
AF AMP V10 ECC83
AF AMP V11 ECC83
AF AMP V12 AU7
AF AMP V13 AU7
LOUDNESS
BASS
TREBLE
PRESENCE
STEREO BALANCE (LOUDNESS)
OUTPUT V14 EL84
OUTPUT V15 EL84
PHASING DOT
NON-POLARIZED
SHORTING PLUG
LEFT CHANNEL
RIGHT CHANNEL
"USED WITH MODELS SFD-8 & SFD-280
PHASING DOTS
RADIAL SPEAKER CIRCUIT USED IN MODELS SFD-280, SFD-2530 & SFD-2535
USED ON RADIAL SPEAKER MODEL DK-322 ONLY.
RECT V16 5U4GB
POWER PLUG
POWER SOCKET
ON-OFF SW ON BASS CONTROL
ON-OFF SW ON RECORD CHANGER
PHONO MOTOR
100V SOURCE
100V C SOURCE
220V B SOURCE
200V SOURCE
220V A SOURCE
100V A SOURCE
TAPE INPUT SOCKET
TAPE OUTPUT SOCKET
TO FM EXT ANT TERM BOARD
SECT 1 REAR
SECT 1 FRONT
SECT 2 FRONT
SECT 2 REAR
SELECTOR SW (MS) SHOWN IN "PHONO" POSITION. MONAURAL SW SEQUENCE. 1. MONAURAL PHONO 2. STEREO PHONO 3. STEREO TAPE 4. MONAURAL
SELECTOR SW (MS) SHOWN IN "PHONO" POSITION. SW SEQUENCE. 1. PHONO 2. AM 3. FM 4. FM-AFC
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings
5. Nominal tolerance on component values makes possible a variation of +15% in voltage and resistance readings
6. Volume control at maximum, no signal applied for voltage measurements
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1960

ZENITH MODELS SFD280M, R, SFD2530R, W, Y, SFD2535M, R (Ch. 3D33, 9D26)



CHASSIS BOTTOM VIEW - ALIGNMENT, CAPACITOR & MISC. IDENT.



TUNER CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT.

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE
V1	FM RF Amplifier	6BJ6
V2	FM-AM Converter	12AT7
V3	FM AFC	6AB4
V4	1st FM-AM IF Amp.	6BA6
V5	2nd FM-AM IF Amp.	6BA6
V6	FM Limiter	6AU6
V7	Discriminator-AM Det. - AVC	6BC7
V8	Left Channel AF Amp. - Right Channel AF Amp.	ECC83/12AX7
V9	Left Channel AF Amp. - Right Channel AF Amp.	12AU7
V10	Left Channel Output	EL84/6BQ5
V11	Right Channel Output	EL84/6BQ5
V12	Rectifier	5U4GB

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲80	450	22-3159	AFH3-46	C0370	FP378	TMT-43	TVL-3793	
B	■40	450							
C	▲30	350							
C2	40	25	22-1156	PRS1470	BR4015	TC48	TD-40-150	TVA-1413	
C3	10	350	22-2943	PRS1620	BR1045	TC62	TD-10-450	TVA-1604	
C4	100	50	22-3160	PRS1360	BR1005	TC3501	TD-100-50	TVA-1310	
C5	3	30NP	22-2945	NP-PRS7405	BBR4-150	TCN503		TVANS-1215*	
C6	3	30NP	22-2945	NP-PRS7405	BBR4-150	TCN503		TVANS-1215*	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C7	7.5 10%			DD-7R5	L10V8		GP560	10TS-V75
C8	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C9	100		BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C10	1000 N033	#22-1888				*		
C11	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C12	1000 N033	#22-1888				*		
C13	22 N75 5%	#22-1506				*		
C14	1000 N033	#22-1888				*		
C15	.68		NPO-SI .68	TCZ-R68				
C16	19 N150 5%	#22-2630				*		
C17	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C18	50 N330	#22-1367				*		
C19	100		BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C20	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C22	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C23	1000		EF-001	MFT-1000		CCF-102	CT280A	
C24	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C25	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C26	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C27	4700 10%		DI-4700		PM6D47	CCD-472	JL-247	10TS-D47
C28	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C29	2200 10%		DI-2200		PM6D22	CCD-222	GP223	10TS-D22
C30	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C31	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C32	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C33	100		BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C34	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C35	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C36	1000 10%		DI-1000	DD-102	PM6D1	CCD-102	GP210	10TS-D10
C37	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C38	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C39	1000		BPD-001	DD-103	BYA10D1	CCD-102	B-210	5HK-D10
C40	1000		BPD-001	DD-103	BYA10D1	CCD-102	B-210	5HK-D10
C41	2200 10%		DI-2200		PM6D22	CCD-222	GP222	10TS-D22
C42	.0047 200V 10%		V84C2D47-10%		PM6D47	6DP-1-472	JL-247	6TM-D47
C43	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C44	100		SI 100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C45	.0022 200V 10%		V84C4D22-10%		PM6D22	6DP-1-222	GP222	6TM-D22
C46	2200 10%		DI-2200		PM6D22	CCD-222	GP222	10TS-D22
C47	.0033 200V 10%		V84C4D33-10%		PM6D33	6DP-1-332	JL-233	6TM-D33
C48	100		BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C49	.1 600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P1
C50	.01 200V 10%		V84S1-10%		PM4S1	4DP-1-103	GEM-1611	4TM-S1
C51	.01 200V 10%		V84S1-10%		PM4S1	4DP-1-103	GEM-1611	4TM-S1
C52	2200 10%		DI-2200		PM6D22	CCD-222	GP222	10TS-D22
C53	.0047 200V 10%		V84C2D47-10%		PM6D47	6DP-1-472	JL-247	6TM-D47
C54	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C55	100		SI 100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C56	.0022 200V 10%		V84C4D22-10%		PM6D22	6DP-1-222	GP222	6TM-D22
C57	2200 10%		DI-2200		PM6D22	CCD-222	GP222	6TM-D22
C58	.0033 200V 10%		V84C4D33-10%		PM6D33	6DP-1-332	JL-233	6TM-D33
C59	100		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C60	.1 600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P1
C61	.01 200V 10%		V84S1-10%		PM4S1	4DP-1-103	GEM-1611	4TM-S1
C62	.01 200V 10%		V84S1-10%		PM4S1	4DP-1-103	GEM-1611	4TM-S1
C63	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C64	10000 1400V		DAC-27	DD16-103	HVE16S1	3CCD-103	2HV-110	BL-S10
C65	1000		EF-001	MFT-1000		CCF-102	CT280A	
C66	47 N75 10%	#22-2376				*		
C67	47 N75 10%	#22-2376				*		
C68	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1

\# Zenith Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	2meg*	1/2	63-4383					Loudness, Left Channel
B	2meg*	1/2						Stereo Balance, Right Chann
R2A	1meg	1/2	63-4460					Bass, Left Channel
B	1meg	1/2					UE4105S	Bass, Right Channel
C	Switch							Push-Pull, Off-On
R3A	10K	1/2	63-4411	B-13			FA14L	Presence, Left Channel
B	10K	1/2		SR-13			RU14L	Presence, Right Channel
C	Shaft			Not Req.			CS3500	
R4A	1meg	1/2	63-4476	AB-70	AD47-1meg-Z		FA16A	Treble, Left Channel
B	1meg	1/2		SR-70	Not Req.		RU16A	Treble, Right Channel
C	Shaft			AK-7	FS-3		CS3500	

* Taps @ 500K & 1meg.

RESISTORS (IRC or EQUIVALENT)

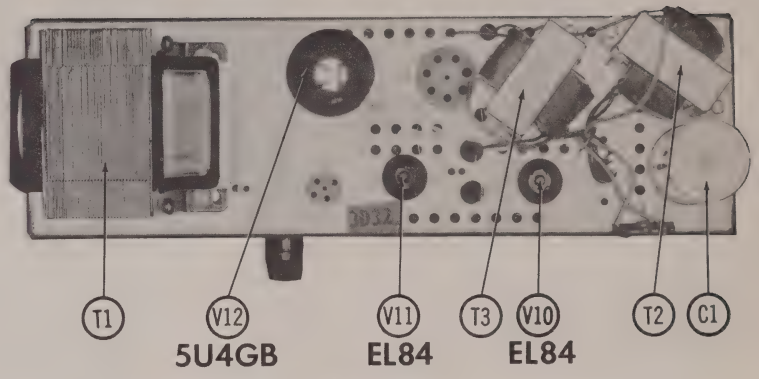
All wattages 1/2 watt, or less, unless otherwise listed.

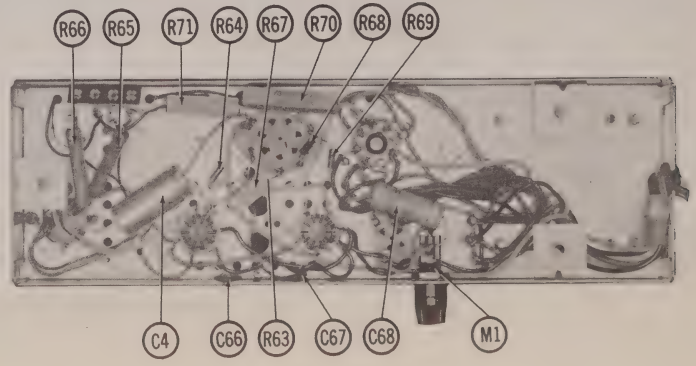
ITEM No.	RATING	REMARKS
R5	2.2meg	
R6	220Ω	
R7	220Ω	
R8	1000Ω	
R9	2200Ω	
R10	10K	
R11	47Ω	
R12	100K	
R13	2.2meg	
R14	1800Ω	
R15	220Ω	
R16	4.7meg	
R17	2.2meg	
R18	4.7meg	
R19	220Ω	
R20	220Ω	
R21	100K	
R22	220Ω	
R23	100Ω	
R24	47K	
R25	220K	
R26	15K	
R27	100K	

ITEM No.	RATING	REMARKS
R28	150K	
R29	150K	
R30	82K	
R31	150K	
R32	560K	
R33	33K	
R34	100K	
R35	680Ω	
R36	82K	
R37	150K	
R38	560K	
R39	33K	
R40	100K	
R41	2.2meg	
R42	82K	
R43	560K	
R44	47K	
R45	47K	
R46	33K	
R47	22K	
R48	2200Ω	
R49	680Ω	
R50	10K 1W	

ITEM No.	RATING	REMARKS
R51	2.2meg	
R52	82K	
R53	560K	
R54	33K	
R55	22K	
R56	2200Ω	
R57	680Ω	
R58	2000Ω 10W	
R59	1.5meg	
R60	1.5meg	
R61	2.7meg	
R62	1meg	
R63	1meg	
R64	1000Ω	
R65	2000Ω 4W	
R66	2000Ω 4W	
R67	165Ω 2W	
R68	1meg	
R69	1000Ω	
R70	2200Ω 10W	
R71	1200Ω 10W	

AMP-CHASSIS





PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: ZENITH PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Ant. Coil	20-337	19-1003	19-1003	BC-537	4608		4. 2uh
L2	RF Choke	20-682	19-1000	19-1000	BC-561	4602		1. 1uh
L3	FM RF Coil	S-15743						
L4	FM Osc. Coil	S-15691						
L5	Loop Ant.	S-44649						
L6	AM Osc. Coil	S-46288						
L7	1st FM IF Trans.	95-1150	16-3487*	16-3487*	FM-251*	1451*		
L8	1st AM IF Trans.	95-1250						
L9A	2nd FM IF Trans.	95-1251						
B	2nd AM IF Trans.							
L10	3rd FM IF Trans.	95-1150	16-3487*	16-3487*	FM-251*	1451*		
L11	3rd AM IF Trans.	95-1102	16-6770*	16-6770*	BC-355*	12-C6*		
L12	Discriminator	95-1153						
L13	Fil. Choke	20-337	19-1003	19-1003	BC-537	4608		4. 2uh

* Remove center bolt mtg. plate & use adapter plate.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA: ZENITH PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
	PRI.	SEC. 1	SEC. 2							
T1	117V @ 1A	620 VCT @, 115A	5V @ 3A	95-1633						
	SEC. 3	SEC. 4	SEC. 5							
	6. 3VCT @ 2. 2A	6. 3V @ 2. 1A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA: ZENITH PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	8200Ω	110Ω	95-1660							
	Tap @ 3/5	SEC. 2								
		6-8Ω								
	PRI.	SEC. 1								
T3	8200Ω	110Ω	95-1660							
	Tap @ 3/5	SEC. 2								
		6-8Ω								

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: ZENITH PART No.	QUAM PART No.	NOTES
SP1	12"	PM	6-8Ω	49-852 *	12A6PA	* Used in Model SFD2530 Series. See Schematic for additional speaker information.
SP2	5"	PM	3-4Ω	49-856 *	5A1Z3, 4	
SP3	12"	PM	6-8Ω	49-852 *	12A6PA	
SP4	5"	PM	3-4Ω	49-856 *	5A1Z3, 4	
	5 1/4"	PM	3-4Ω	49-896	52A1	
	3 1/2"	PM	10-12Ω	49-782	3A15TZ12	
	6"x 9"	PM		49-902		
	12"	PM		49-900		

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ZENITH PART No.	REPLACEMENT DATA
K1	Limiter Grid Bias	25mmf, 100K	105-42	Sprague PRC-11

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: ZENITH PART No. FUSE	ZENITH PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG	4A 250V	136-31	62-23 *	312004 (3AG 4A 250V)	342001	MTH4	HKP

* Cap Part #15-20.

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA: ZENITH PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE	JENSEN PART No. CARTRIDGE	JENSEN PART No. NEEDLE	SONOTONE PART No. CARTRIDGE	SONOTONE PART No. NEEDLE
M2	142-92 *	13TB	Not Req.	26-S	S1-1 S3-3	53	J-43 and J-47X	8TA4-S	N-8TA-S

* Includes dual sapphire needles.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA: ZENITH PART No.	CLEVITE WALCO PART No.	JENSEN PART No.	REMARKS
M3	(Part of M2)	W-101STS † or W-101SDD ♦	E98 † or E98D ♦	† Jewel ♦ Diamond
		W-102MGS † or W-102MGD ♦	E98X † or E98XD ♦	

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M4	Tuning Cap	22-3019	2 Gang, Ant. 20-457mmf, Osc. 30-195mmf.
M5	Switch	85-614	Band Selector (Rotary Wafer)
M6	Switch	85-631	Function Selector (Rotary Wafer)

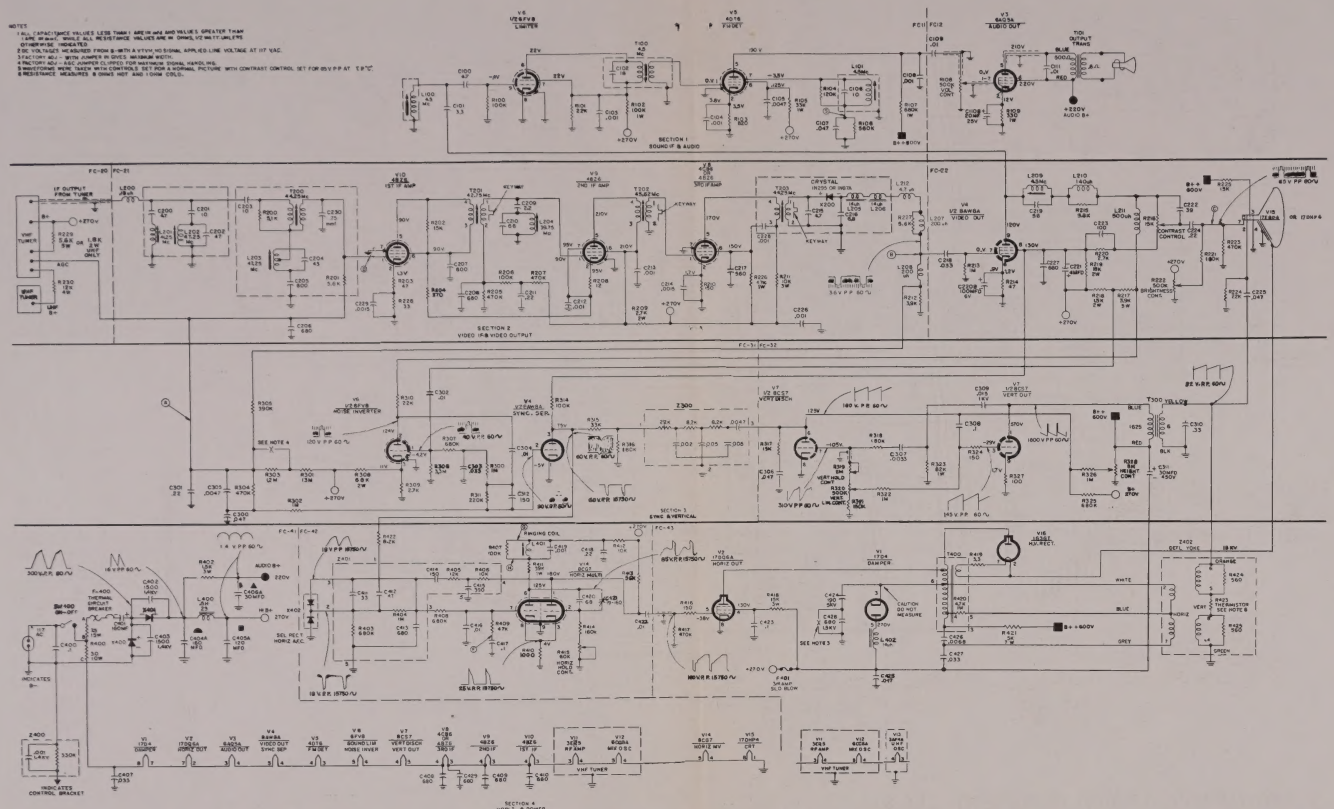
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	S-44166	Tuning, (Includes Ring Assy.)
Knob	S-46162	Presence, Bass, Off-On Treble
Knob	46-2097	Volume
Knob	46-2080	Bandswitch, Function
Knob	46-1997	Volume (Remote)
Dial Pointer	59-341	
Dial Scale	26-613	
Dial Crystal	192-252	Models SFD2530E, R, W, Y, & SFD2535R, M
Dial Crystal	192-254	Models SFD280R, M
Indicator	26-622	Presence & Tone
Cabinet	14-2641E	Model SFD2530E
Cabinet	14-2641R	Model SFD2530R
Cabinet	14-2641W	Model SFD2530W
Cabinet	14-2641Y	Model SFD2530Y
Cabinet	14-2825M	Model SFD280M
Cabinet	14-2825R	Model SFD280R
Cabinet	14-2827M	Model SFD2535M
Cabinet	14-2827R	Model SFD2535R

WIRING DATA

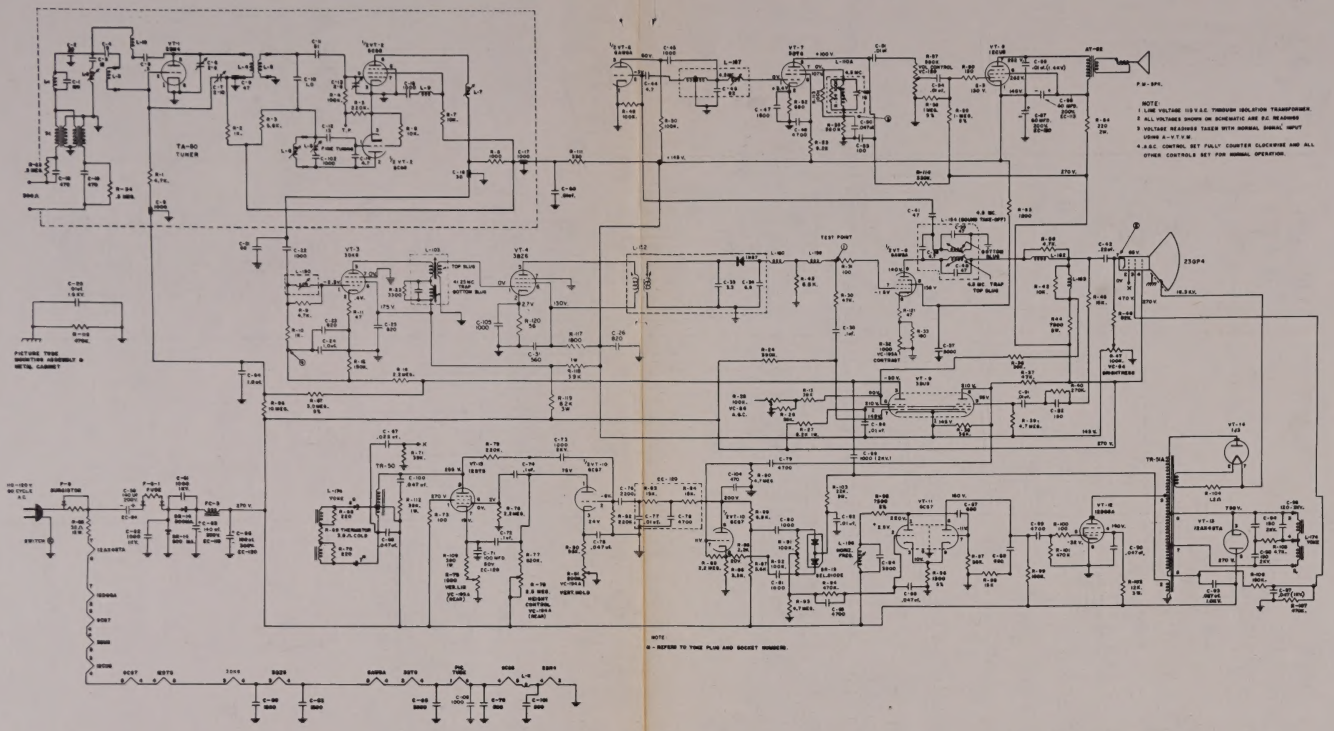
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)



AIRLINE MODELS GTM-4223A, GTM-4323A

Schematic Diagram Courtesy of Montgomery Ward & Company

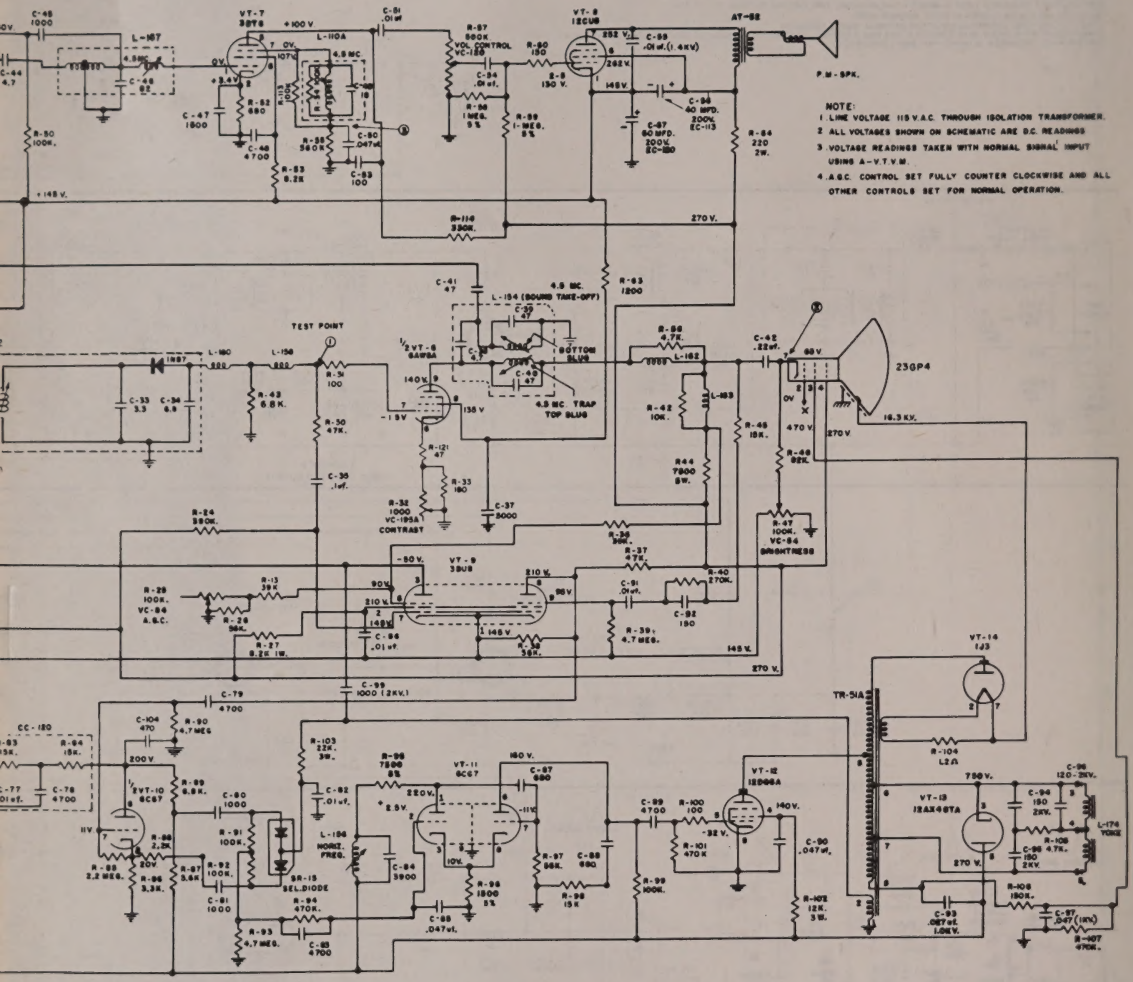
TRAV-LER



TRAV-LER MODELS 23K6077, 23MT6055 (CH. 1150-80)

Schematic Diagram Courtesy of Trav-Ler Radio Corporation

© Howard W. Sams & Co., Inc. 1960



NOTE:
B - REFERS TO YOKE PLUG AND SOCKET NUMBERS.

Schematic Diagram Courtesy of Trav-Ler Radio Corporation